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HOW TO PLAN A CHILDREN'S HOSPITAL

By A. C. Bachmeyer, M.D., Superintendent, Cincinnati General Hospital, Cincinnati

THE principles underlying the planning of children's hospitals are primarily the same as those that govern the planning of any other type of institution. Limitation of service to a definite age-group and the special problems created by that group produce the essential differences between these and general hospitals.

After a careful study of the community's need for such an institution, and due consideration of the results of such study, a comprehensive program, covering every phase of the hospital's activities should be prepared. Type and inclusiveness of service, modern methods of treatment and diagnosis, special requirements of the various types of patients, administrative needs and probable future expansion should be considered.

The danger of the outbreak of acute communicable disease, and its transmission through cross infection, is probably the most important and difficult of the many problems encountered in planning a children's hospital. Most careful consideration should therefore be given to methods of solving the difficulty. One of the two methods generally used may be seen in many institutions recently erected or now in process of construction. (Fig. 9.)

In most of the plans that the writer has studied an isolation or observation unit has been provided near the admitting department, in which from two to ten beds have been placed. Here the patient can be isolated for a period of time equivalent to the usual incubation period of most contagious diseases. After detention in such quarters and careful observation, the patient is transferred to

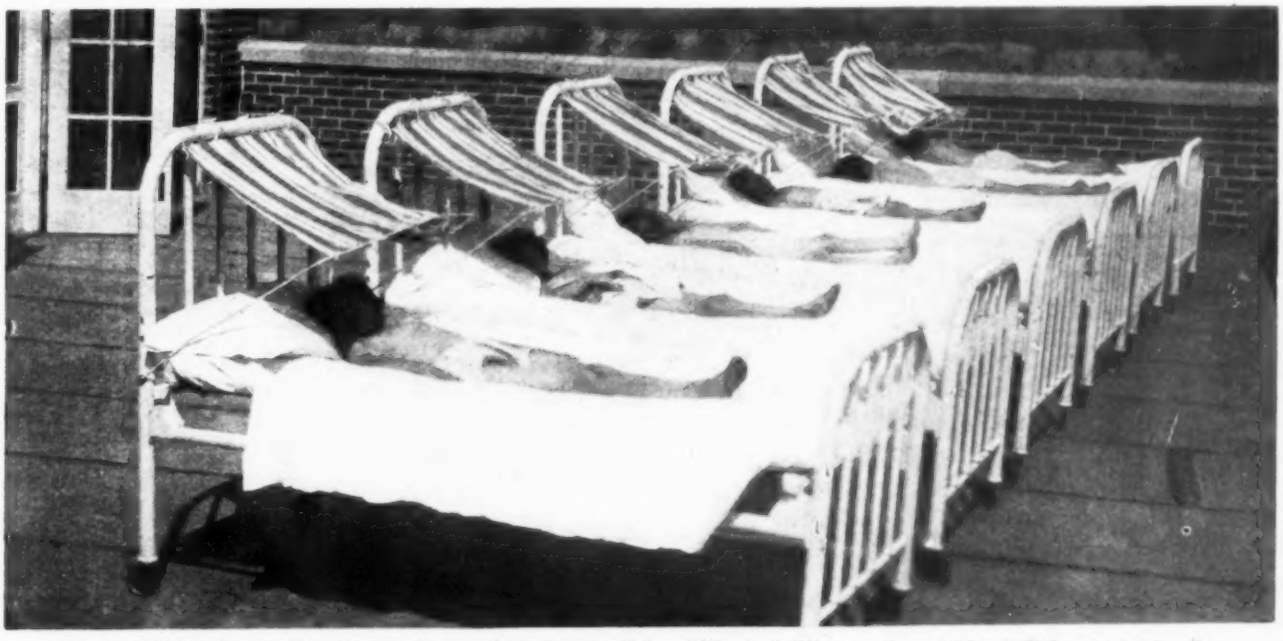


Fig. 1. National Jewish Hospital for Consumptives, Denver, Colo., children's building; patients taking heliotherapy treatment.

some other portion of the hospital and placed in an open ward.

This method of admission has been found to be very helpful in reducing the number of cross infections in the hospital and in eliminating periods of quarantine, particularly in institutions where the service is not very active, such as orthopedic hospitals. In the majority of instances infectious cases will in this way be excluded from the wards and careful nursing technique will prevent cross infections.

The weakness and danger of this method lies in the fact that occasionally a latent communicable disease will not be detected, and its later development in some other part of the hospital exposes others to danger and subjects them to quarantine restrictions, even though they may not contract the contagion. It has also been shown that the preliminary period of isolation may engender a false sense of security among the physicians and nurses, causing them to relax in their watchfulness and permitting opportunity for cross infection to develop. Acute colds and other upper respiratory infections frequently develop among patients, even among those who may have resided together for some time; visitors to the children are also often the source of contagious contact, and this method of admission of patients does not offer protection against infections arising from these sources.

The second way of solving the problem, namely, the use of the cubicle system throughout the institution, has not been so frequently used.

This may be, in part, because it is more expensive so far as building cost is concerned. The cubicle system has, however, many advantages over the isolation method and in the long run may not be any more costly. The patient can be immediately placed in the proper nursing unit; he remains isolated but at the same time may see and even speak to his neighbors. The elasticity of the institution is increased. The necessity for a carefully planned and exact nursing technique is not lessened but rather emphasized, the physical barrier between patients serving to remind the personnel of the need for deliberate care in going from one child to another.

A distinct isolation suite for the care of patients who may develop an acute communicable disease after admission, should be provided in every children's hospital. (Fig. 5.) Such provision will enable the authorities to isolate the infected child and continue its treatment, thus avoiding the necessity for transfer to some other acute communicable disease hospital. This plan also obviates interference with therapy that has been instituted for the primary illness, and does not cause inconvenience to parents or other relatives.

Illustration by courtesy of Hentz, Reid and Adler, Atlanta, Ga.

Fig. 2. Scottish Rite Hospital, Atlanta, Ga. Use of grounds for recreational purposes.

Cubicle System in Waiting Room

Where an active out-patient service is one of the institution's activities, the use of the cubicle system in the main waiting room is well worth consideration. The Children's Hospital of Michigan, Detroit, is one of the hospitals that has recently installed this system and finds it very desirable. (Fig. 7.)

This hospital has used a 4x4 feet cubicle, seven feet high, with the upper half of the partition glazed, and has built in an oak bench, placing

it on steel brackets, but keeping it clear of the partition on all sides, in order to facilitate cleaning. Contacts such as are unavoidable in the usual waiting room are thus eliminated.

If children under two years of age are to be admitted, special attention must be given to the quarters they are to occupy. Segregation in the nursery is highly desirable and in addition each child should have its own individual equipment. The Children's Hospital, Cincinnati, has divided its nursery into cubicles that are about four feet square, and has installed a small lavatory in each cubicle, so that with the equipment contained in the bedside stand the nurse will have at her immediate command everything for the usual nursing procedures for the child. The nursery should be so located that the natural light will be subdued.

When wet-nurses are to be used, their quarters should be conveniently located in connection with the nursery, so that they may be near at hand when needed. The usual room and bath or two rooms with connecting bath will suffice for all the purposes the room may have (Fig. 3).

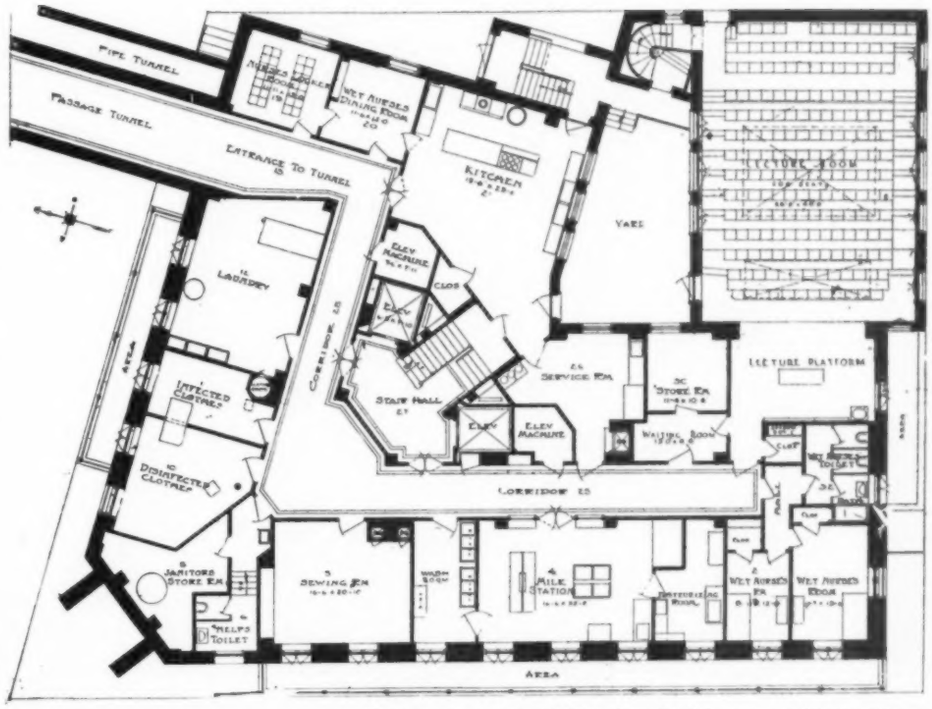


Illustration by courtesy of Richard E. Schmidt, Garden & Martin, Chicago

Fig. 3. Sarah Morris Hospital for Children, Chicago, Ill. Wet-nurses' suites and milk laboratory.

Many difficulties are encountered in the care of premature babies. The questions of proper nourishment, temperature and humidity are among the most important. Various types of incubators are on the market, but none of these has been entirely satisfactory. Superheated rooms with facilities for increasing the humidity have also been used; these, too, have failed to give entire satisfaction. Recent studies at the Pittsburgh laboratories of the U. S. Bureau of Mines have thrown some light upon the subject of "comfort zones" of temperature and humidity for adults, and similar studies with reference to infants, at the Harvard School of Public Health, will no doubt add to our knowledge in this connection. The installation of special air-conditioning apparatus in a specially insulated room seems to offer the best method of meeting the requirements. The room provided for this purpose at the Children's Hospital, Cincinnati, has been designed in this way.

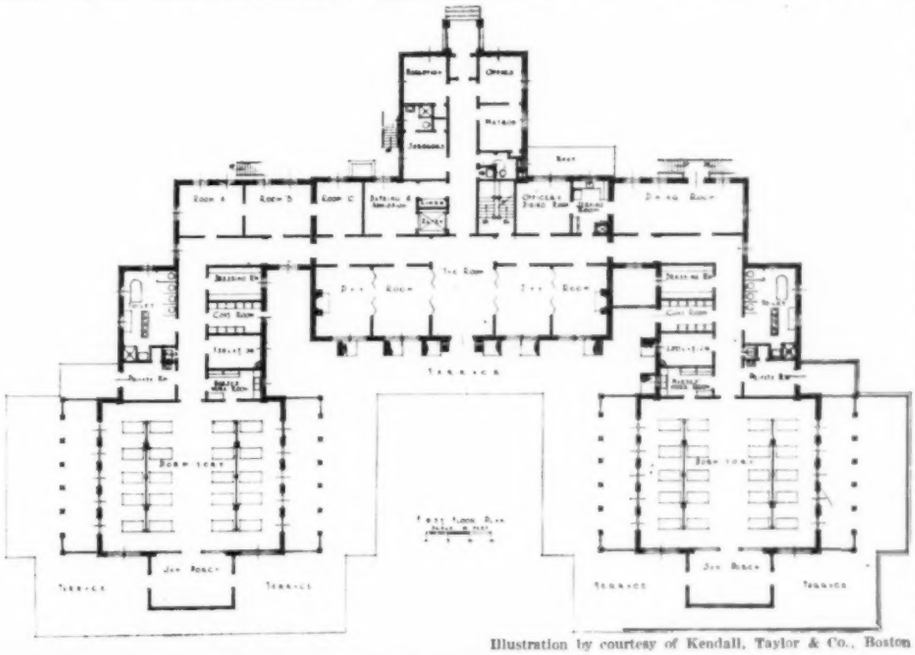


Illustration by courtesy of Kendall, Taylor & Co., Boston

Fig. 4. Sole-e-Mar Orthopedic Hospital, South Dartmouth, Mass. Plan of arrangement and terraces for heliotherapy.

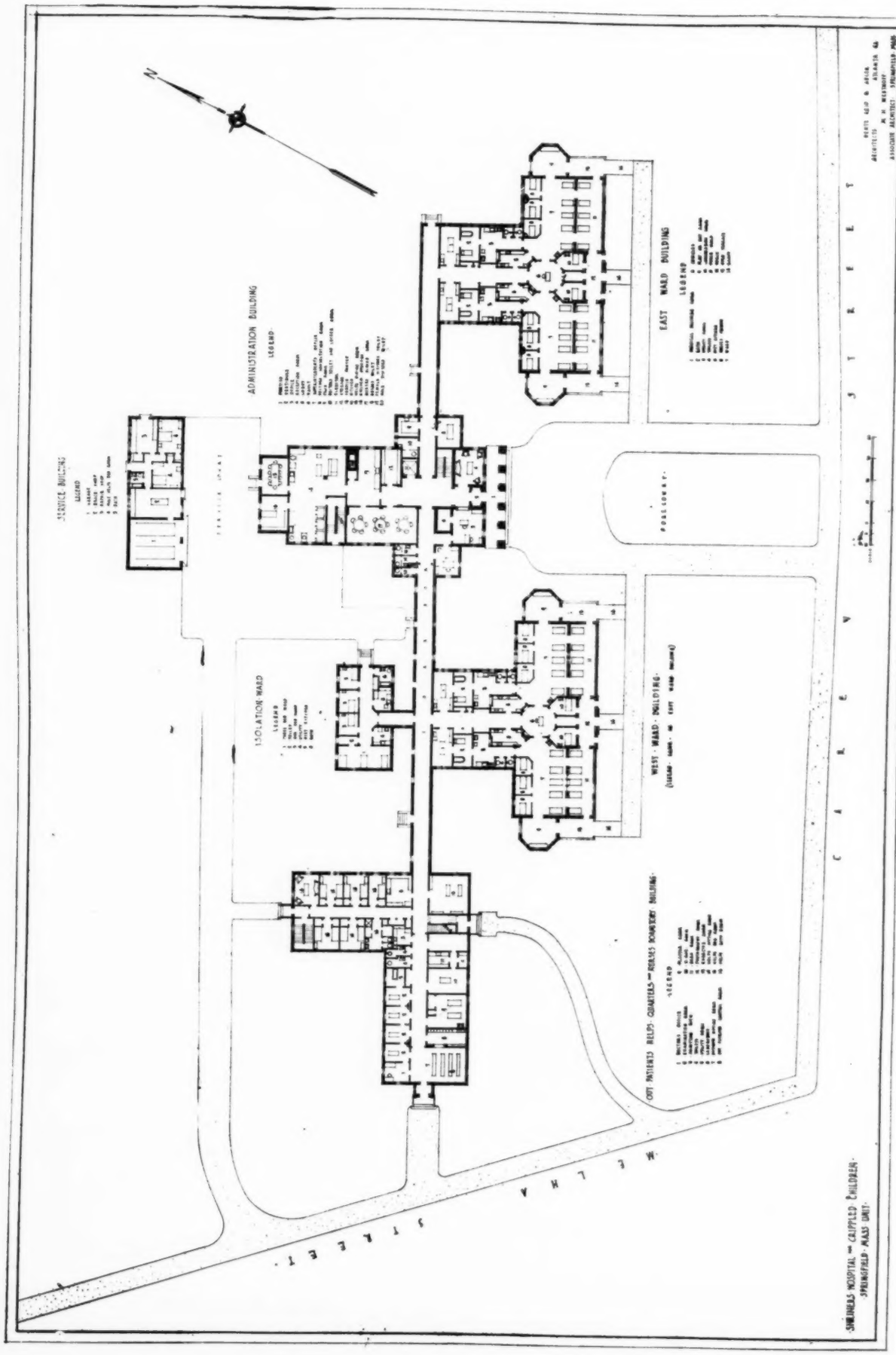


Illustration by courtesy of Heinz, Reid & Adler, Atlanta, Ga.

Fig. 5. Isolation ward in the rear of the west ward building, Shriners' Hospital, Springfield, Mass.

The preparation of proper food for infants demands the installation of a special diet or milk laboratory. The laboratory should be conveniently located with reference to the distribution of its product. The room should be well lighted and strict attention should be paid to its sanitation. The following items of equipment will be required: double compartment sink with bottle washing device, cooling sink, lavatory, milk pasteurizing and sterilizing unit, cream separator, incubator, water sterilizers, cereal cookers, refrigerators, hot plates, work tables and storage cupboards. The milk laboratories at the Sarah Morris Hospital, Chicago, (Fig. 3), the Babies' Hospital of Philadelphia, the Children's Hospital, Cincinnati, and the Babies' Hospital, Boston, are among those that are worthy of study.

The requirements of the older children approximate those of the adult patient. Many of the elements of a children's hospital should, however,

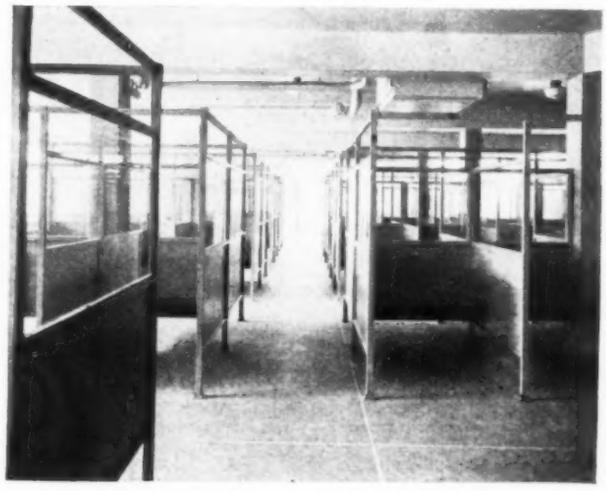


Fig. 7. Cubicle system, O.P.D. waiting room, Children's Hospital of Michigan, Detroit, Mich.

be reduced in size to fit the child. Beds, cribs and other furniture should be smaller; toilet fixtures should be lower; all electric switches, fixtures and radiator valves, should be, as far as possible, placed out of the reach of the small child. The number and distribution of other facilities, such as utility rooms, laboratories, diet kitchens and operating rooms, should be the same as in the institution for adults.

The prevalence of orthopedic conditions among children calls for special attention to facilities for the treatment of such patients. A plaster room should be included in the surgical suite. The use of hydrotherapy calls for special plumbing fixtures, such as constant-flow bathtubs and foot and arm tubs. Physiotherapy requires the assignment of definite quarters and the installation of equipment for baking, massage and gymnastics.

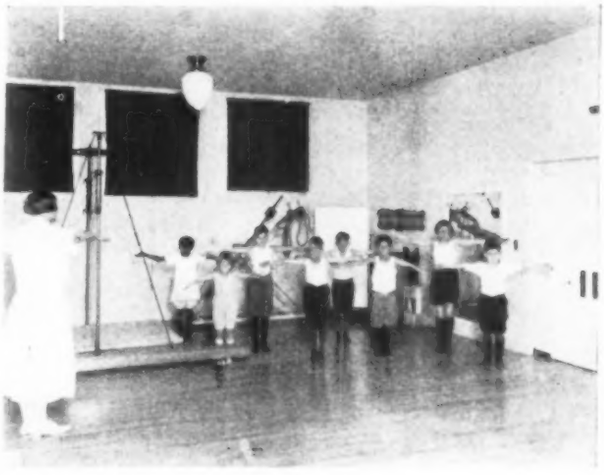


Fig. 6. Children's Hospital, Los Angeles, Cal., gymnasium: calisthenic exercises.

An airy, well lighted room should be provided for the gymnasium. Some equipment, such as horizontal bar, Swedish stall bars, chest weights, jury masts and probably a quarter circle, should be installed but for the most part the usual calisthenic exercises are used. (Fig. 6.)

The use of heliotherapy is attracting widespread attention at this time. For proper use of this type of treatment, provision must be made whereby the patient's naked body can be exposed to the sunlight at any time of day. The area set aside for this purpose must be conveniently located, so that beds may be easily moved about; it should be protected from the wind, for air currents cause discomfort to the patient. The provisions that have been made for heliotherapy at Perrysburg, south of Buffalo, N. Y., at Akron, Ohio, at the new orthopedic hospital, "Sol-e-Mar," South Dartmouth, Mass., (Fig. 4) and at the National Jewish Hospital for Consumptives, Denver, Colo., (Fig. 1), are the best illustrations of the type of arrangements necessary.

Various forms of artificial light are being used

Fig. 8. Children's Hospital, Columbus, O. Scheme of decoration.

to supplement natural sunlight on cloudy or cold, windy days. Thus far none of the lamps has proved entirely satisfactory but progress in this direction is being made. A lamp recently developed at the Cincinnati General Hospital offers many advantages over those that have thus far been used. If artificial light is to be used on a large scale, special wiring and attention to ventilation of the room is necessary.

All of the recently constructed hospitals for children contain provision for "quiet" rooms, indicating that the importance of having quiet quarters, to which the very sick patient may be moved, is generally recognized. In many instances acoustical, or sound absorbing material has been used on ceilings and walls of certain portions of the buildings.

A review of plans and descriptions of children's hospitals recently erected shows that a very definite effort is being made to provide cheerful surroundings for the patients. Light colors—buffs, tans and blues—are being used in the decorations. In some instances, of which the Children's Hospital, Columbus, Ohio, is an excellent example, mural decorations illustrating childhood stories have been used, (Fig. 8).

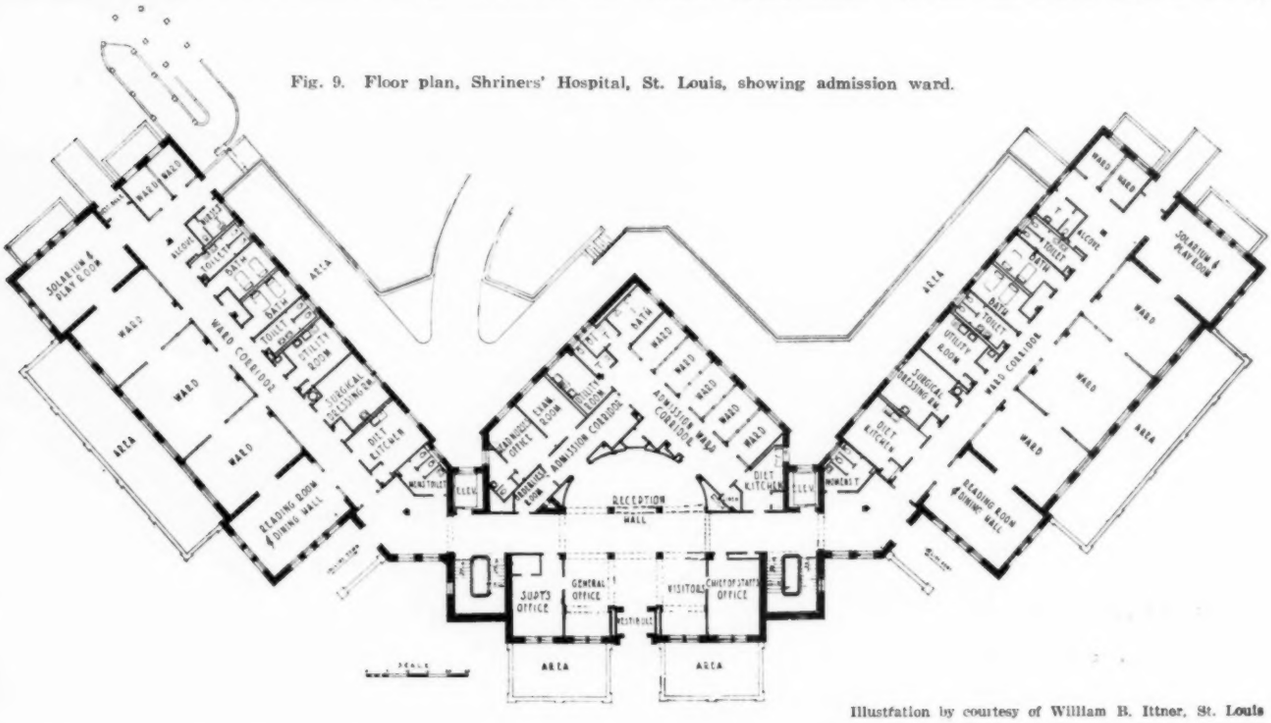
Avoid Monotony in Decoration

At Columbus the same idea has been developed in the use of inlays in the rubber floor covering and also in the design of some of the furniture. In other institutions, provision has been made for pasting "cut-outs" upon a wide border just above the wainscoting. This scheme makes possible frequent change in the decorations and thus avoids monotony for both patients and personnel.

Many of the institutions built within the last year or two are structures of one or two stories and are designed to permit of easy access from the wards to the hospital grounds. Careful attention has been given to the hospital site and to its development as a recreational park. The grounds of the various Shriners' Hospitals are notable instances of this development. (Fig. 2)

In certain hospitals, ramps have been used between the building and the ground in order to facilitate the movement of cribs, wheel chairs and other equipment. When extensive use is to be made of the grounds, some of the smaller pieces of playground equipment are often supplied, such as sand boxes, swings and hammocks.

Fig. 9. Floor plan, Shriners' Hospital, St. Louis, showing admission ward.



Illustfation by courtesy of William B. Ittner, St. Louis

This paper cannot discuss all of the elements that enter into the planning of a children's hospital and only a few of the outstanding items have been indicated. The medical program of service and the scheme of administration should be determined before building plans are prepared. As in all other building projects, balance, flexibility, unity, diversity, sanitation, ventilation, facility and economy of operation and maintenance should be borne in mind, and should be regarded as of more importance than economy of construction. Children's hospitals differ from general hospitals only in so far as they limit their service to a definite group and have especial facilities for treatment of that group.

PLANNING THE SURGICAL SERVICE

By Paul N. Jepson, M.D., Section on Orthopedic Surgery, Mayo Clinic, Rochester, Minn.

WHILE authorities may differ with regard to the arrangements of hospitals, operating rooms, convalescent rooms and hospital equipment in general, there can be no question concerning the importance of carefully planning such details.

Fig. 2 is the plan of what was considered a model about thirty years ago. At that time a few hospitals contained special rooms or accommodations such as are now believed essential to the proper care and comfort of the patient. Utensils that were used in the care of the patient were kept in a room with mops and brooms. Linen and medicine were stored in the closets used for patients' clothing, carts and wheel chairs. Arrangements for surgical service were very meager compared to those now in force, when appliances and space are in keeping with the improvements in technique and in the preoperative and postoperative care of patients.

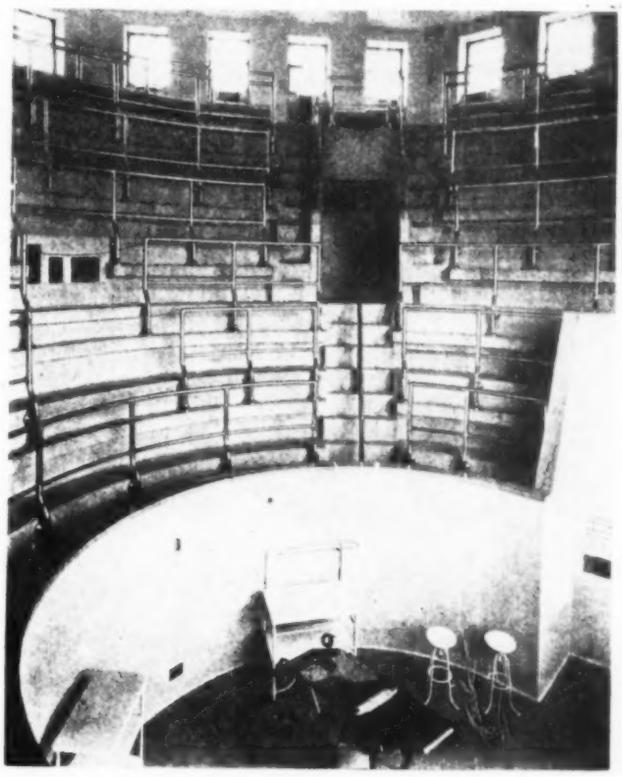


Fig. 1. Amphitheater at St. Mary's Hospital, Rochester, Minn.

In many hospitals the mistake is often made of over-developing the operating space, with the result that some of this space is used but little. A proper arrangement of the service rooms adjacent to the operating rooms is very important, since if they are inadequate; inconvenient, or inaccessible, efficiency is greatly reduced. Every possible mechanical appliance that is necessary in the reconstruction and repair of the human body should be provided and so placed that it will function effectively, and in the shortest time consistent with efficiency and quality.

In St. Mary's Hospital, Rochester, Minn., the surgical pavilion, consists of ten operating rooms similar in every respect. (Fig. 3). These rooms, situated on the fifth floor of the building, are grouped in pairs. A utensil, wash-up and sterilizing room divides the two operating rooms. Each room is two stories high, with an arena 30 feet square. The floor is of gray tile in 2-inch units. The side walls and ceiling are cream color. In order that visiting physicians may see the operative procedures perfectly, the gallery is a half-story higher than the floor of the operating room. This gives the observer a good view of the operative field and at the same time the operating arena is kept clear for those immediately connected with the operation. The gallery accommodates one hundred persons and the seat-banks and floor are of terrazzo. The entrance is on the sixth floor. (Fig. 4).

On the same floor is a large waiting room where visiting physicians may read or rest until the operation in which they may be particularly interested is signalled on the bulletin board. Each operating room has a silent signal connection with this bulletin board and also with the corridors on the sixth floor, to indicate the operation in progress. Adjoining the waiting room is the coat room, and the desk where the visiting physician may register and receive a program of the day's work. A room containing pathologic specimens, and the art studio are also near the waiting room. It is essential that the artists be conveniently near the operating rooms so that they may be called at a moment's notice and be prepared to take photographs without delay.

All the operating rooms have zenith light, and all but three face the north, thus affording uniformity of light, and freedom from the direct rays of the sun. These rooms also have skylights. The windows are double, the outside group being of plate glass, and the inner of polished pyramidal glass. They are equipped with motor-driven, light-proof shades with a switch control in the

arena. Small casement windows give access to an area two feet wide between the sashes, in which are the heating coils.

One of the operating rooms has a dark gray tile floor and wainscoting, the walls are painted gray and the windows are equipped with automatic curtains that completely darken the room. This is used when fluoroscopy is necessary in the operating room.

The amphitheater occupies the center of the north wing of the surgical pavilion and is on the fifth floor, adjoining the regular operating rooms (Fig. 1). It faces the north and is lighted by a glass area of 225 square feet. The amphitheater seats 300 persons, the farthest seat being but twenty-six feet from the operating table. Here also the visitor enters on the sixth floor. The amphitheater is equipped with a motion picture machine and a stereopticon. Dry clinics are held here daily, and during medical or surgical society meetings operations are performed and clinics held. The sterilizing room is to the right, and the instrument room to the left of the arena of the operating theater.

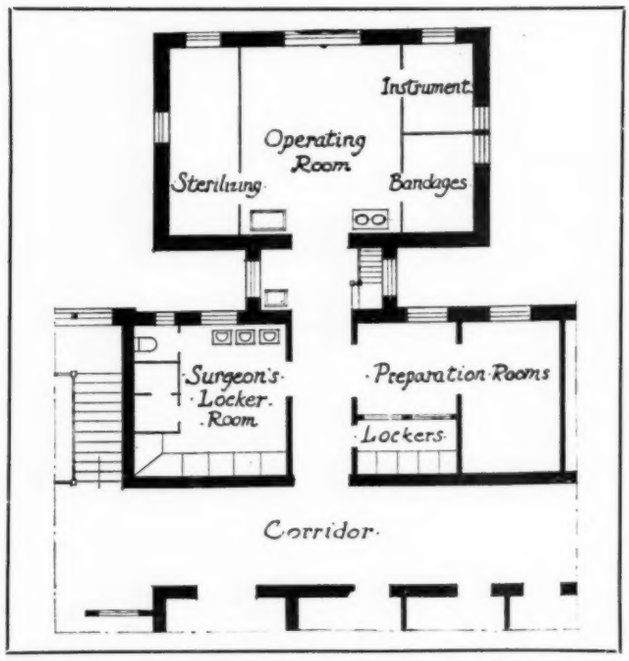


Fig. 2. Plan of an operating and service room thirty years ago

The laboratories of surgical pathology are just across the corridor from the operating rooms on the fifth floor. In this group are included lecture rooms, offices, and

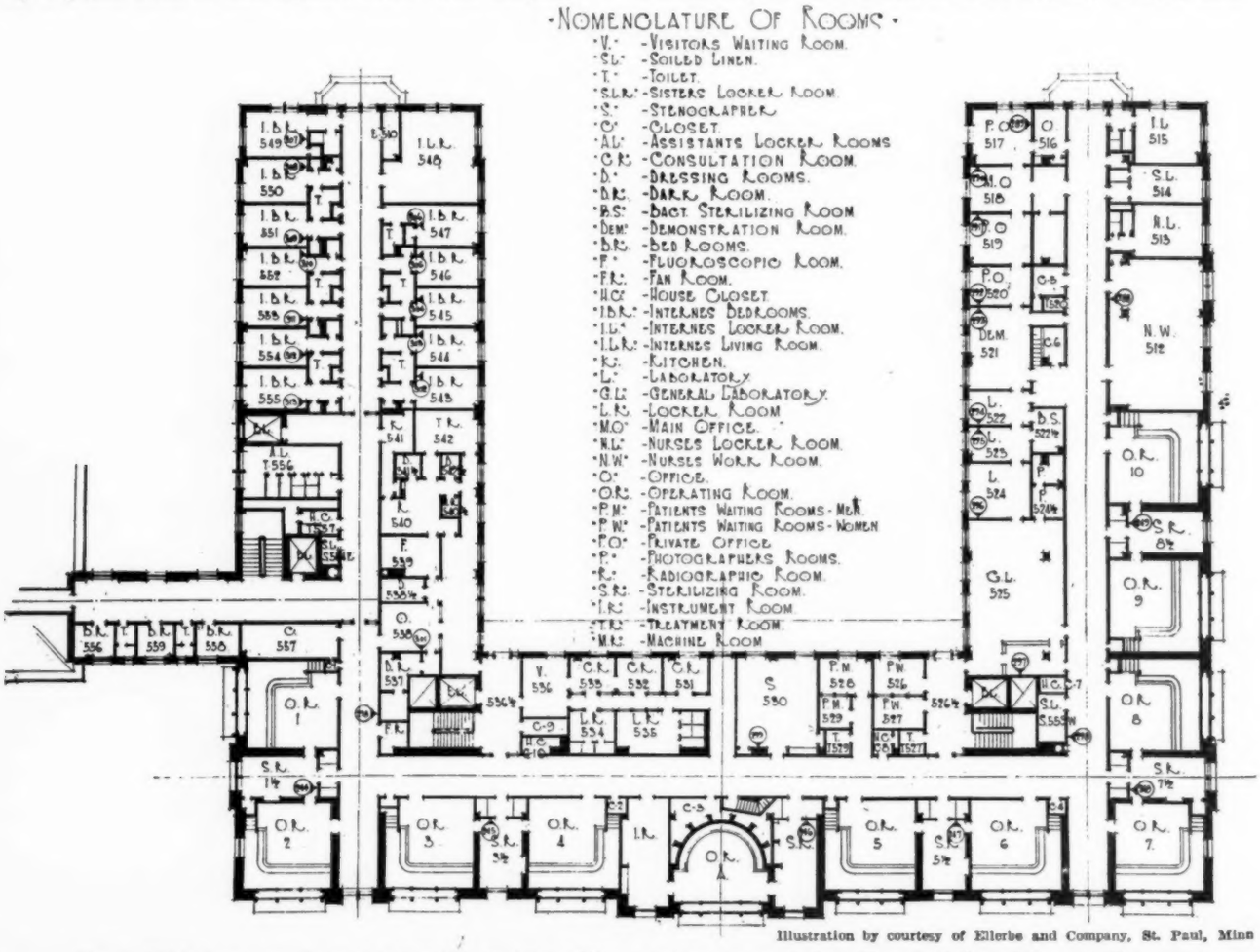


Illustration by courtesy of Ellerbe and Company, St. Paul, Minn

Fig. 3. Fifth floor plan, St. Mary's Hospital, Rochester, Minn., showing the surgical pavilion, consisting of ten operating rooms.

rooms for microscopic study and research. There is ample room for teaching purposes.

Adequate dressing rooms for surgeons, near the operating rooms, are properly planned and equipped with toilet and bath. A rather large, well equipped nurses' workroom plays its part in an efficient surgical pavilion.

Anesthetic Given in Operating Room

There are no anesthetizing rooms *per se* in St. Mary's hospital. The modern operating room is attractive and interesting, and a view of the surgeon's workshop will be a source of satisfaction to the patient. The anesthetic is administered in the operating room, the preparation of the operating field going on at the same time. This saves from twenty to thirty minutes on each operation. This arrangement of the operating rooms, together with efficient assistants, enables the surgeon to go to the adjacent or twin room for the next operation, while his first assistant closes the wound from the first operation and prepares the next patient, thus saving the surgeon's time waiting for the preparation of patients.

Very often comparatively little thought is given to the convalescent in the surgical hospital. Although convalescent patients are dismissed a short time after they are allowed to be up and about the nursing unit, the period before leaving the hospital, if only a few days, may often be very trying, not only to the patients, but to the personnel of the institution, unless an assembly room is provided for the use of patients. In St. Mary's Hospital each floor has three sun parlors large enough to accommodate the convalescents.

In certain hospitals a great deal of space is given over to wards. The contrary is true at St. Mary's Hospital, where the demand for private rooms is far greater than for space in wards or semi-private rooms.

Floor Devoted to Orthopedics

Certain cases belonging to the so-called specialties have been segregated, for example, the seventh floor is given over entirely to orthopedic cases. (Fig. 5). Overhead frames, special apparatus and special beds for handling patients with various disorders, are in use under competent supervision.

Much attention is given to the postoperative

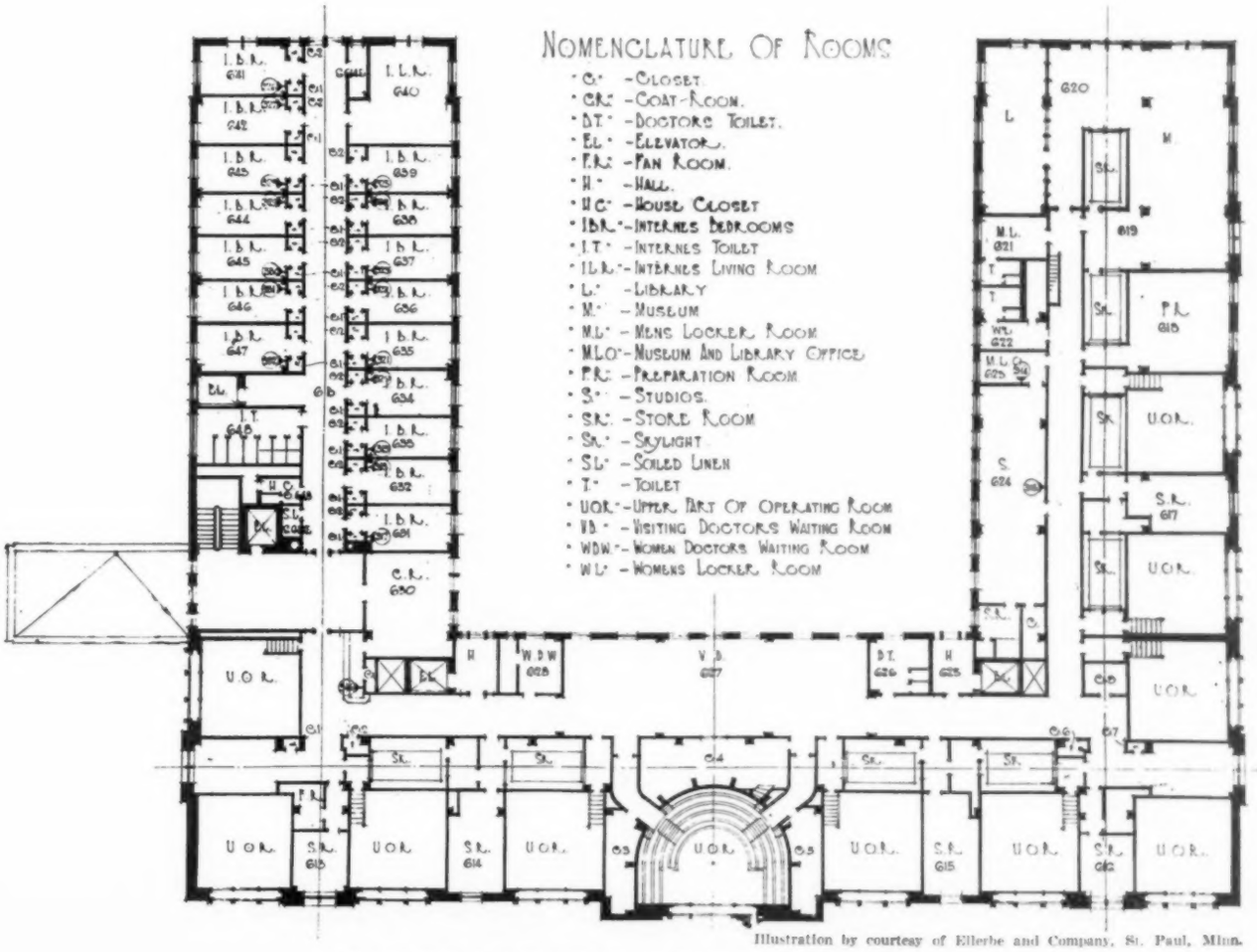

NOMENCLATURE OF ROOMS
C. - CLOSET.
CR. - COAT-ROOM.
DT. - DOCTORS TOILET.
EL. - ELEVATOR.
F.R. - FAN ROOM.
H. - HALL.
H.C. - HOUSE CLOSET
I.B.R. - INTERNES BEDROOMS
I.T. - INTERNES TOILET
I.L.R. - INTERNES LIVING ROOM
L. - LIBRARY
M. - MUSEUM
M.L. - MENS LOCKER ROOM
M.L.O. - MUSEUM AND LIBRARY OFFICE
P.R. - PREPARATION ROOM
S. - STUDIOS.
S.R. - STORE ROOM
SK. - SKYLIGHT
S.L. - SOILED LINEN
T. - TOILET
U.O.R. - UPPER PART OF OPERATING ROOM
V.D. - VISITING DOCTORS WAITING ROOM
W.D.W. - WOMEN DOCTORS WAITING ROOM
W.L. - WOMENS LOCKER ROOM

Illustration by courtesy of Ellerbe and Company, St. Paul, Minn.

Fig. 4. Sixth floor plan, St. Mary's Hospital, Rochester, Minn.

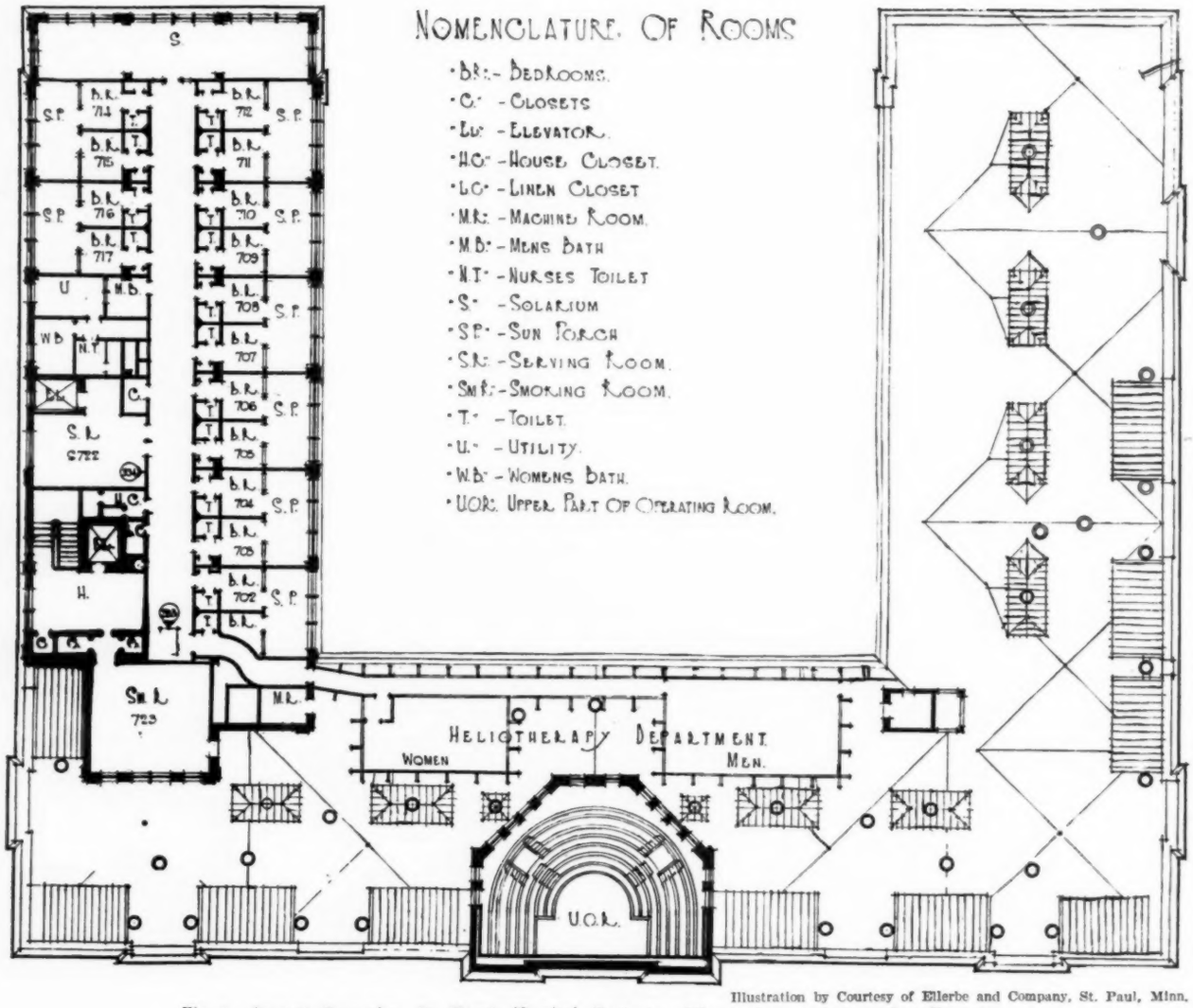


Illustration by Courtesy of Ellerbe and Company, St. Paul, Minn.

Fig. 5. Seventh floor plan, St. Mary's Hospital, Rochester, Minn., given over to orthopedic cases

care of the patients, because on this one factor may depend the success or failure of the treatment. During the summer months the patients requiring such treatment are wheeled out through a passageway on to the solarium, for heliotherapy. Separate curtained spaces are provided for men and women patients. This form of treatment is too often neglected in American hospitals. During the cold months of the year treatment by quartz lamp is substituted for heliotherapy so that patients are not exposed to severe cold.

Allot Space With Care

Physiotherapy is important in the treatment of orthopedic diseases, and for this reason ample space should be allowed for treatment rooms and necessary apparatus for giving the various therapeutic treatments.

The necessity for detailed planning of the surgical service or unit, in order that there may be a minimum of travel incident to performance of the duties of the unit, is obvious. Spaces properly planned and small in area, will provide for an efficiency of performance that cannot be obtained in a much larger space improperly planned.

CLASSIFYING WORN LINENS FOR VARIED USES

The housekeeper in a New England hospital finds that she can save a good deal of time and money by following the outlined procedure in handling bed linens. The first class linens are used on the beds in private rooms. The second class are used in the wards and the third class in the employees' quarters. When the first class linens are no longer good enough to use in the private rooms they are automatically checked into the second division. The same thing happens to the second class when those linens are no longer in condition to be used in the wards. The linen is stamped accordingly so that it can be sorted after laundering. This is done with sheets, spreads, pillow cases, blankets and towels.

When blankets and linen can no longer be used on beds they are cut up and made to fit the small children's beds and cribs. After passing through all these stages of usefulness the rags are finally used in the cleaning and polishing departments.

HOUSING THE PERSONNEL

By Frank E. Chapman, Director, Mount Sinai Hospital, Cleveland

PROPER facilities for the physical care of the personnel of an organization are a prerequisite of efficient performance. This fact is being more widely recognized in all lines of endeavor. In industrial activities we see its recognition in the development of welfare and recreational departments to care for the physical, mental and spiritual needs of the personnel—a personnel that is in contact with the work of an organization during relatively short periods.

The hospial and allied field has an added obligation, for it houses a relatively large proportion of its personnel, with the consequent necessity of furnishing not only dining room, rest room and recreational facilities, but facilities for complete maintenance as well. A tendency is noticeable toward the reduction of the large proportion of personnel maintained by institutions, but in all probability there will always be a relatively high percentage of the personnel of hospitals completely maintained therein, and a larger percentage partially maintained.

It is the purpose of this article to discuss the planning of facilities not only for nurses', but also for other groups.

First of all, let us consider the planning of a nurses' home. The paramount thought should be the planning of a home in fact, as well as in name. This home should be as far removed from the atmosphere of institutional environment as is possible.

If the home is adjacent to the hospital, it should in a measure, assume the type of architecture of the hospital plant, but proper study will permit of conformity to this general type, with a development at some point in the treatment that will suggest the usage of the building.

The recent multistoried buildings do not lend themselves to homelike treatment, but examples exist where proper architectural thought produces a warm exterior. The landscaping of adjacent ground adds or detracts in direct proportion to the thought given to the development.

The relative location of the home to the hospital is, of course, predicated in a large measure upon general conditions surrounding the individual hospital plant, but it is important that there be an avenue of communication with the hospital to permit nurses to walk back and forth without the necessity of going outdoors. If the home is close to the institution, and such communication is not provided, difficulty will be experienced in getting the nurses to protect themselves properly against the elements. This means an increase in illness, and, from a standpoint of economy alone, prompts serious consideration of the development of such an avenue of communication.

Let us start at the entrance lobby. This should present a warm homelike appearance, as different as possible from the formal, austere development sometimes seen. From the standpoint of economy and good taste, simplicity should be the keynote of its planning. All facilities desirable for the proper care of the nurses should be provided, but frills and furbelows are productive of high building and maintenance costs and should be avoided.

A living room, or rooms, of ample proportions should be provided. These rooms will be the recreational center of the home, and the way in which they are planned and used will influence the morale of the nursing group. The rooms must be livable. Every facility that is dear to the young woman's heart, to which she has been accustomed or for which she has longed in her own home, should be provided. But there must not be such a scale of elegance or grandeur that the facilities will not be used continuously by those of the house.

Illustration by courtesy of Charles R. Greco, Boston
Nurses' residence, Mount Sinai Hospital, Cleveland

At the left is the nurses' home of Muhlenberg Hospital, Plainfield, N. J.

Three types of nurses' homes are shown on this page. The illustration at the top shows the square "cottage" type of home, while the center picture may be classed as the ornate residence type and below is the "bungalow" type. The size, loation and wealth of the hospital usually govern the type selected. At the right is the nurses' home of the Royal Victoria Hospital, Montreal.

At the left is a small nurses' home in California where the bungalow type of building is commonly used.

In addition to the lounge, there should be an adequate number of small reception rooms. These should be in the form of alcoves off the lounge and entrance lobby. They should be cozily planned so as to encourage their use by the nurse in entertaining her friends.

Adjacent to the reception room should be the office of the home. In it may be located all the facilities necessary to proper control, such as telephone facilities, nurses' indicator, key racks and mail boxes.

With a recognition that one function of the hospital is the training of young women, comes the necessity for a properly equipped and properly maintained library. In addition to those essential reference books that are a part of the planned course of study, the library should contain a well selected list of books and magazines. The library might well be placed next to the office so that the office workers may act as librarians.

Illustration by Courtesy of James Gamble Rogers, New York.
Nurses' residence, Presbyterian Hospital, New York

No nurses' home is complete without an assembly hall, sufficiently large to accommodate the entire nursing body and to serve as a recreation place for formal and informal dances. The students derive more benefit from social functions when they are held in the home itself.

Some feel that the expenses involved in the construction of an assembly hall large enough to furnish these facilities is unwarranted, but it is of the utmost importance that a group consciousness be developed in the personnel of our institutions. Experience has shown that the most efficient way to accomplish this is by the gathering together of all of the nurses at stated periods for a social hour, thus broadening the point of view by the injection of an atmosphere different from that of the daily work. The staging of amateur theatricals, the development of courses of lectures and talks, the frequent informal and formal dances, the gymnasium classes—all have a tendency to improve morale. No more important task can be delegated to the administrator than this. The usage of such facilities under the direction of a properly qualified house mother are too numerous to mention.

A swimming pool is a heavy item in construction expenses. Maintenance cost, too, must be given careful consideration. The pool will not be universally used, but if funds will permit a swimming pool is a decided asset.

There should, by all means, be facilities for outdoor recreation. Tennis courts and croquet grounds have an appeal to young women. Their use is desirable. If the ground space is inadequate, the roof can be easily utilized; it is not as desirable as ground courts, but will answer the purpose.

Especially in large metropolitan areas, where ground values prohibit the development of lawns, properly developed roof gardens should be provided. They need not be elaborate, but merely places where young women may gather for a sunning. If outdoor sleeping facilities can be provided they are desirable. The roof garden should have toilet and shampooing facilities.

The educational facilities of the home will unquestionably be an index to the educational facilities of the hospital, and the proper planning of these facilities is a criterion of what a prospective nurse may expect from the hospital.

The demonstration room should be large enough to accommodate a class of the entire nursing school and should have facilities for the practical demonstration of every nursing procedure, such as a utility room, a ward, beds, cribs and bedside tables. It should be adequately equipped with blackboards and planned for efficient administration.

In addition to the demonstration room, a lecture room equipped with blackboards, instructor's desk and an adequate number of students' chairs, accommodating a class of the entire nursing school, is an essential part of the physical equipment.

A properly equipped laboratory, with apparatus necessary for the teaching of the sciences, and models and charts that are so essential to proper instruction, is also indicated.

The diet classroom equipped for the teaching of dietetics is necessary, whether it is a separate

The living room in the nurses' home, Oak Park Hospital, Oak Park, Ill., showing the alcove.

Reception rooms and alcoves are important parts of any nurses' home and add to the ease and comfort to a considerable degree. Livable furniture that will receive liberal usage is essential, while stiff, forbidding chairs will simply become ornaments of disuse.

The main reception room of the nurses' home, Hurley Hospital, Flint, Mich.

room or a part of one of the other classrooms.

If the school is large, an instructor's office is essential.

The development of separate facilities for the feeding of personnel is a controversial point. Some contend that a separate personnel kitchen is not economical. Others maintain that one kitchen can serve economically up to a certain point. Let us assume that there will be a separate kitchen and discuss its equipment.

It is, of course, impossible to give a specific plan for a personnel kitchen without a knowledge of the demands that will be made on it, therefore a discussion of the facilities of this kitchen must of necessity be general.

The kitchen should be planned with the largest amount of natural ventilation possible. Natural ventilation is always better than artificial ventilation, and, irrespective of the hooding of ranges, a large amount of outside ventilation is necessary.

Equipping the Kitchen

The range and the broiler are, of course, essential in this kitchen. If the size of the home warrants it, there should be a compartment vegetable cooker, a stock pot and a cereal cooker. The necessity for power slicers and cutting machines, kitchen mixers, juice extractors, and similar items of equipment is in direct proportion to the demands.

The relative value of cafeteria or waitress service for the nursing personnel is another disputed point. The advocates of cafeteria service contend that it is economical, which is admitted; that it permits of prompt service, which is also admitted; that it permits of a variety of menu, which is debatable. However, cafeteria service defeats one of the things that we are striving to accomplish, a homelike atmosphere. It is true that many nurses use cafeterias when they are away from the hospital, but there is a great difference between using a cafeteria because one wants to and using a cafeteria because one has to. The home serves nurses for 365 days a year, three meals a day, and to be compelled to stand in line for 1,000 meals a year is not right. In many institutions the only hour of relaxation during the time on duty is the meal hour, and facilities should be provided for the proper service of that meal.

A compromise is suggested: The morning meal may be cafeteria service. Breakfasts are generally a rush affair. The items of food served at breakfast demand prompt transportation from the kitchen to the consumer. The elimination of waitresses at the morning meal may permit the use of only one crew of waitresses, which is, of course, a saving. Therefore, it is wise to plan the serving room so that it can be operated either with waitress service or with cafeteria service.

The serving kitchen should adjoin the largest service demand of the dining room suite. It should contain, in addition to steam tables, a plate warming device, coffee, tea, milk, cream, cocoa and iced tea urns, butter servers, egg boilers, toasters, and perhaps griddles, refrigerators and ice cream containers as well as the other necessary equipment.

One of the sleeping balconies of the nurses' residence, Winnipeg Municipal Hospital

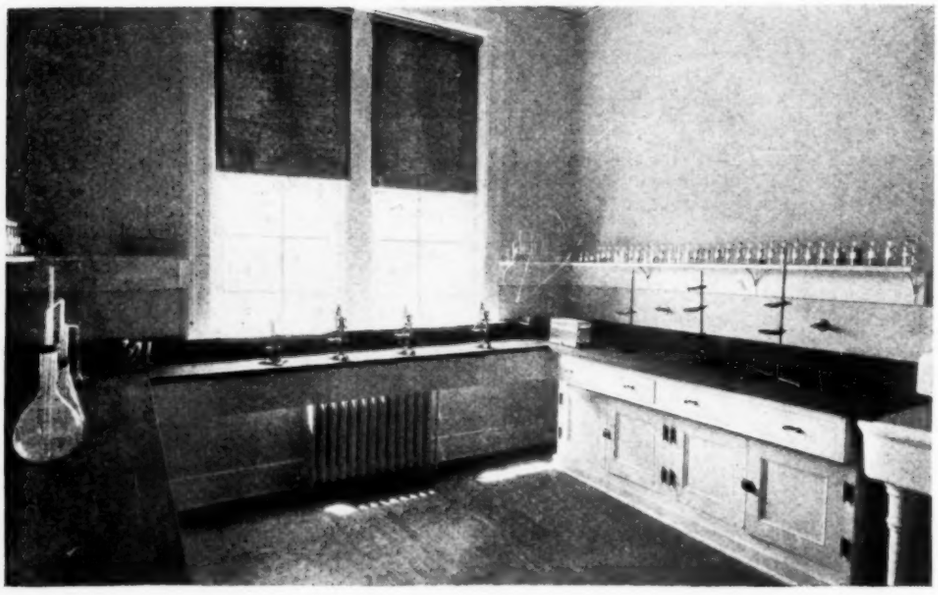
Arrangements for ventilation should be very carefully developed.

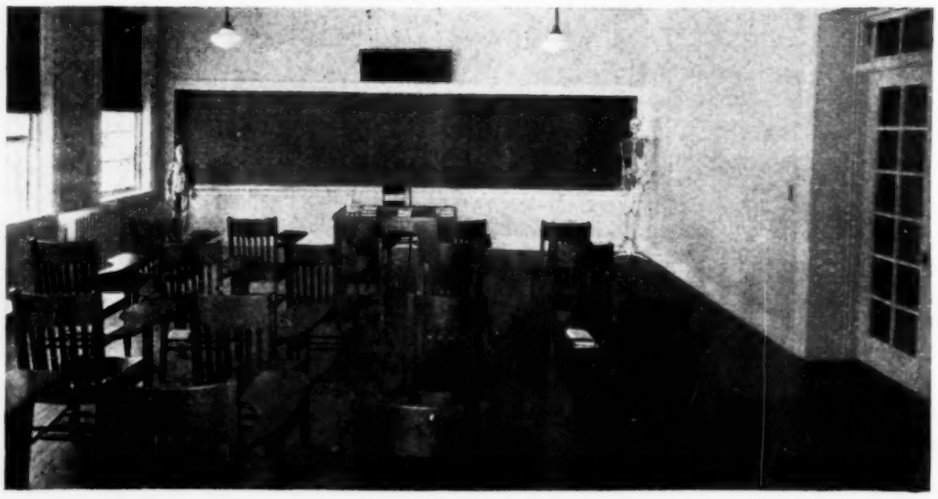
Power dishwashing has been developed to a point where not even the smallest institution can afford to be without it. Dishwashing machines should be provided in duplicate for efficient washing and to provide against the handicap of machines out of service. Silver burnishing machines should also be included in the equipment.

There are two points of view to consider in planning the dining room; first, the development of a large dining room for all groups of the nursing department and, second, the segregation of head nurses, graduate nurses, special duty nurses and student nurses in separate dining rooms. The wishes of the individual institution should of course, govern, but the large dining room adequately spaced to preclude over-crowding and furnishing facilities for the entire nursing body, has a tendency to create a spirit of democracy.

The question of small tables serving four or five of the larger tables, for ten or twelve, is a controversial one. But by placing the nurses at round tables of approximately forty-two inches in

At the right is the dietetic laboratory at the nurses' home, Muhlenberg Hospital, Plainfield, N. J., while below is the chemical laboratory in the same home.





At the left is the class room at the Muhlenberg Hospital nurses' home.

diameter, with four or five at a table, a homelike atmosphere is created that cannot be obtained with the larger tables.

The dining room should be airy, light and pleasantly decorated. The ensemble of draperies, chinaware and tableware should be pleasing. The atmosphere of the dining room should be as pleasant as possible so that the meal hour may be an hour of relaxation.

If there is a separate personnel kitchen, it is logical in any but the largest institutions that these kitchens be planned to serve groups other than the nurses. There should be dining room facilities for the resident medical group, the office personnel and the technical group and separate facilities for male and female domestic help.

The size and number of these individual dining rooms will be determined by the service demands of each group. If this plan is adopted, care must be exercised to locate the dining room and kitchen facilities at such a point that there will be no necessity for travel through the home to get to these facilities.

The term "house mother" is used to indicate that the matron of a home must be something more than just a matron. Young women need guidance aside from that professional direction that the principal of the school furnishes, and the selection of a properly qualified house mother is a prerequisite to the creation of the right kind of esprit de corps in the nursing group.

It seems logical that the living quarters for the house mother should be relatively close to the entranceway to the home. So that there may be the best possible supervision. If the home is large, the house mother could be given a bedroom, bath and sitting room, so that she may have facilities for interviewing members of the nursing family with a degree of privacy that is highly desirable.

Single Rooms Preferable

The trend of modern construction is toward the provision of a relatively small, properly planned room for each nurse rather than larger rooms for two or more nurses. The former plan seems preferable. Each of us craves solitude at times and it seems improper to force on the nurses the intimacy that a dual occupancy of a room compels. With proper planning not much greater cubage will be needed for the development of individual rooms than for double rooms. Therefore a room 10x13 feet, properly planned, will give to each nurse her own facilities and will permit her that privacy that is desirable.

The nurse's room should have, in addition to a bed, drawer space adequate for a complete storage of all of the nurse's possessions, hanging space for coats and dresses, desk facilities, book racks, a mirror properly placed to permit a full length view, a bed lamp, proper draperies for the windows, all designed with an eye to a homelike, friendly, cozy result.

Care must be taken to supply locks for the furniture so that the occupant of the room may lock up her belongings.

For the principal of the school and for certain department heads, suites of rooms, consisting of a bedroom, a bath and a sitting room, should be provided. Those intrusted with the equipment of those suites will, of course, be governed by the funds available, and by individual tastes, but they should bear in mind that these are the permanent quarters of valuable members of the hospital personnel, and that their comfort and happiness are of the utmost importance.

Sleeping Quarters for Night Nurses

Provision for uninterrupted sleep for nurses on night duty is essential, and thought should be given to this phase in planning the home. Some homes provide dormitories with sleeping facilities for the nurses on night duty. Others provide a separate corridor for night nurses. The solution of this important problem rests with the individual institutions.

Whether facilities for the care of sick nurses should be provided in the hospital proper or in the nurses' home is dependent entirely upon the facilities of individual institutions, but this problem must be considered and solved in the planning of the home.

The question of the ratio of baths, toilets and lavatory facilities is a controversial one. Individual lavatories in nurses' rooms materially increase the construction cost of the institution, and their value is debatable. This statement is made with the definite reservation that adequate plumbing facilities will be furnished, easily available for all parts of the home.

The ratio of toilets to the personnel is variable. As a minimum, it is suggested that one toilet for every six, one bath or shower for every ten, and one lavatory for every three is indicated. These ratios are the minimum. A certain number of showers should be provided. Many people are old-fashioned enough to want a tub bath, and tubs should be provided. Dental fountains should be furnished.

Partitions between individual lavatories permit of a certain degree of privacy, and are a refinement that is welcome.

Toilet facilities should be developed in a room separate from the bath facilities and lavatories. They should be in two or more units, rather than

in one large unit, if the size of the home makes this desirable. We should study the traffic needs of the individual rooms and split up the service to preclude an undue amount of crowding.

There is a demand for small recreation rooms, where a nurse in negligee may meet other nurses outside of her own room. If possible, there should be small sitting rooms on the various floors for this purpose. These rooms need not necessarily be large or elaborately equipped.

Small kitchenettes where the nurses may prepare dainties and have some of the facilities that they would have at home are desirable. These need not occupy large areas, and can be planned in spaces that do not lend themselves to other uses. They will be found to be a great asset.

Include a Sewing Room

Where large groups of women are housed there should be facilities for sewing, and it is advocated that instead of having sewing machines in various parts of the house a sewing room should be planned, with proper illumination and power machines.

Facilities should be furnished to permit the occupants of the home to take care of such apparel as would suffer in the hospital laundry. The administrator of the home might just as well recognize that these things will be taken care of to the detriment of the furniture of the institution, if such facilities are not furnished by the home. Therefore a small laundry, with laundry tubs and ironing boards, will be an item of economy in operation.

A trunk storage room that is easily accessible will prove a boon to the house mother.

It is assumed that the nurses' home will be on a weekly requisition system, and that therefore there is no need for large storage facilities. There is a need for individual linen closets on each floor of the home, for the storage of extra blankets and towels, and also for a central storeroom where housekeeping supplies may be kept. The kitchen suite should have a storage closet for foodstuffs.

Refrigerated drinking water is desirable, and properly located drinking fountains will be a decided asset.

A time clock system, synchronizing with the system of the hospital, will save annoyance.

Either the development of separate corridor night lights, or the proper arrangement of the wiring of corridor lights to permit of the illumination of corridors at night without the necessity for excessive consumption of electricity, is necessary. The corridors of the home should never be in total darkness. All corridor, stair well, toilet, lavatory and bathroom lights should be controlled at a central point by lock switches.

Those concerned with planning the institution must recognize the need for adequate means of communication by telephone with the outside, and must provide these facilities. Telephone booths on the separate floors are extremely desirable for incoming calls, and it may be desirable also to permit them for outgoing calls. Unquestionably the individual suite should be provided with telephone facilities.

There are several nurses' communicating systems on the market that answer the need of this service. It is essential that facilities be provided in the home to permit the summoning of individual nurses when they are wanted. A buzzer system from the main office to the nurses' rooms is adequate. A refinement of this system is the installation of a return call buzzer system indicating that the nurse is in the room.

A great many institutions, because of their location, or their traditions, maintain a large personnel other than nurses, and it is believed essential that the facilities for this group be discussed.

Planning for the Domestic Personnel

A certain distinction should be maintained between the various groups of hospital personnel, and there is a question as to the desirability of the development of housing facilities for domestic personnel as a component part of the nurses' home. If the development of the institutional plant compels such a combination, these facilities should be, physically, completely separated by the development of separate entranceways, and without any communication other than is absolutely essential to maintenance. There is, of course, the necessity of segregation of sexes, and there is further the necessity of proportioning the facilities between various groups according to their social and economic status. However, care should be exercised in planning for this group and the same relative comforts and advantages should be provided for them as for the nurses. Recreational rooms, adequate toilet facilities and proper location of sleeping space is as important in one group as in the other, and the same supervision of morale and the same development of esprit de corps in this group will be productive of relatively the same value to the hospital as is the case in the nursing group.

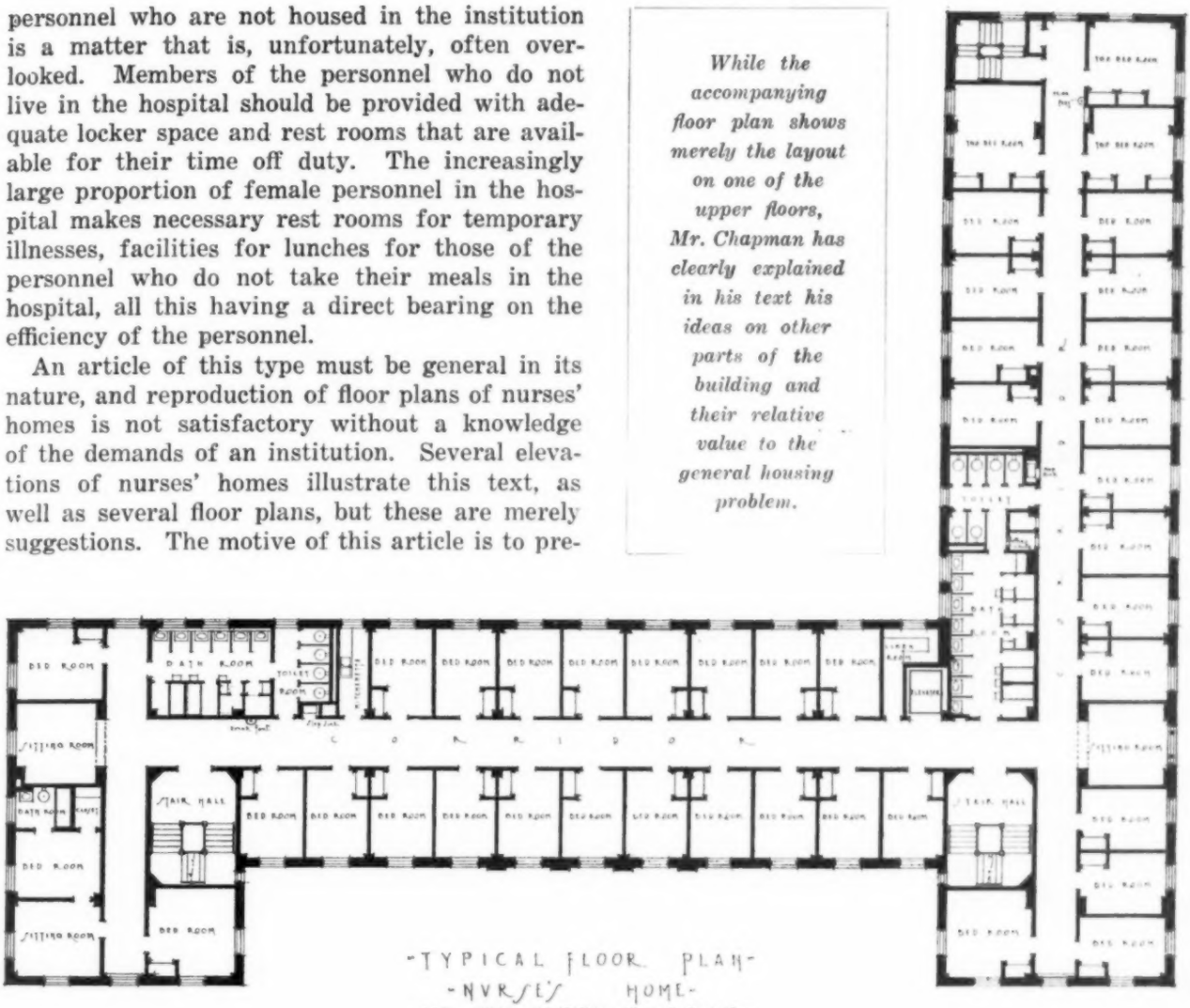
Of course social distinctions must be recognized, and there will perhaps not be the elaborate development that there is in the nurses' home, but the essential facilities should be furnished.

The provision of rest rooms for those of the

personnel who are not housed in the institution is a matter that is, unfortunately, often overlooked. Members of the personnel who do not live in the hospital should be provided with adequate locker space and rest rooms that are available for their time off duty. The increasingly large proportion of female personnel in the hospital makes necessary rest rooms for temporary illnesses, facilities for lunches for those of the personnel who do not take their meals in the hospital, all this having a direct bearing on the efficiency of the personnel.

An article of this type must be general in its nature, and reproduction of floor plans of nurses' homes is not satisfactory without a knowledge of the demands of an institution. Several elevations of nurses' homes illustrate this text, as well as several floor plans, but these are merely suggestions. The motive of this article is to present to the readers of THE MODERN HOSPITAL a general conception of the problems involved in the planning of facilities for personnel, with the hope that the suggestions given may develop new lines of thought in the minds of those responsible for planning such facilities.

While the accompanying floor plan shows merely the layout on one of the upper floors, Mr. Chapman has clearly explained in his text his ideas on other parts of the building and their relative value to the general housing problem.



ERADICATING RATS

Unfortunately there are still a good many non-ratproof hospitals in the United States and there are a few which are ratproof but into which rats have gained entrance and are thriving in the security of their environment.

Aside from the fact that rodents have been incriminated in the matter of the transference to man of several different diseases, their presence in a hospital is disgusting and annoying, especially to the sick. Therefore it behooves all rat-ridden institutions to evict absolutely this useless and dangerous mammal.

Rats are like human beings; they will not live in the absence of an adequate food supply and a habitation that affords reasonable protection against the elements and natural enemies. If either of these is lacking, rats will soon depart. The place, therefore, to begin the rodent survey is in connection with the storerooms and kitchen. These should be made ratproof and any rodents that remain after this has been done should be killed by trap or poisons. In the placing of traps, it should be borne in mind that rodents always travel along a wall, feeling their way with their long vibrissae or mustaches. Traps, therefore, should always be against the wall, or in the path that the rat usually follows. Either snap or cage traps may be used. For poisoning, barium carbonate on suitable baits is about the best. The bacterial rat poisons should not be used on account of the danger of contaminating foodstuffs with the bacillus typhi murium which is a close relative of the paratyphoid bacillus and is therefore dangerous to man. If the ratproofing has been done well and traps are intelligently set, it is seldom necessary or advisable to spread poison, especially where people come in contact with it.

It is not intended in this column to treat extensively the question of rodent extermination in hospitals. The U. S. Public Health Service has published a number of valuable bulletins on this subject and the topic is fully discussed in THE MODERN HOSPITAL YEAR BOOK, page 280. The purpose of this paragraph is merely to signalize the necessity for rodent eradication in ratridden hospitals as a preventive measure against the possible entrance of these pests.

EXPANSION AND FLEXIBILITY OF UTILITIES

By Richard E. Schmidt, F. A. I. A., Richard E. Schmidt, Garden & Martin, Architects,
Chicago

IT IS sufficient to say that every hospital utility should be placed to insure the maximum of flexibility. In this day of high operating costs in which efficiency is necessary to keep within a figure that can be met, either by the purchase money of the user, or by contributions from private or public sources, it is obvious that economical methods are essential in manufacturing and repairing articles that will be utilized.

As many of the readers of this publication are not architects, it is well to say a few words about that portion of the planning that architects regard as most important, the ground plans of the various floors. These must be visualized and plotted in advance of all other preparations.

Planning should not be confused with the drawings which are usually blue printed for the use of the various building crafts. It does not refer to the elevations or designs of interiors or to the many details that are necessary to fabricate the doors, windows, stairs, cabinets and those parts that are in the nature of equipment or embellishments.

The function of each part of a building must be expressed in every detail in the ground plans of the floors before the elevations or any of the equipment can be designed or placed, unless some of the important pieces of equipment will dominate the construction.

The first principle of planning is circulation; that is, the means of conveying the raw material to the various machines, transporting the partially worked material in an orderly sequence to complete the product, and moving the finished product to the point of discharge. These operations must be carried out without slowing up the process or causing confusion by crossing the paths already traveled. Architects, when judging the merits of several plans made for the same process, consider circulation the basic element and allow for it the largest number of points in grading. It is obvious that crossings cannot be avoided in buildings as complex as hospitals, so judgment must be applied as to which means will be least objectionable, or which will cause the least delay, inconvenience and interference.

The writer is not losing sight of the fact that the patient's interests must receive the first consideration in every decision. These will be met to a greater degree, and his opportunity for complete recovery will be more favorable in a hospital where the utilities are placed with the maximum flexibility. There can be no question that they are mandatory requirements of good hospital planning.

Flexibility refers to the possibility of increasing or decreasing the output of utilities, or changing the nature of a utility to lend itself to changing conditions brought about by an increase in capacity or a change in technique. Inasmuch as the heating plant of a hospital is one of the prime utilities it may be well to begin the discussion with that department.

Two boilers should be accepted as the minimum

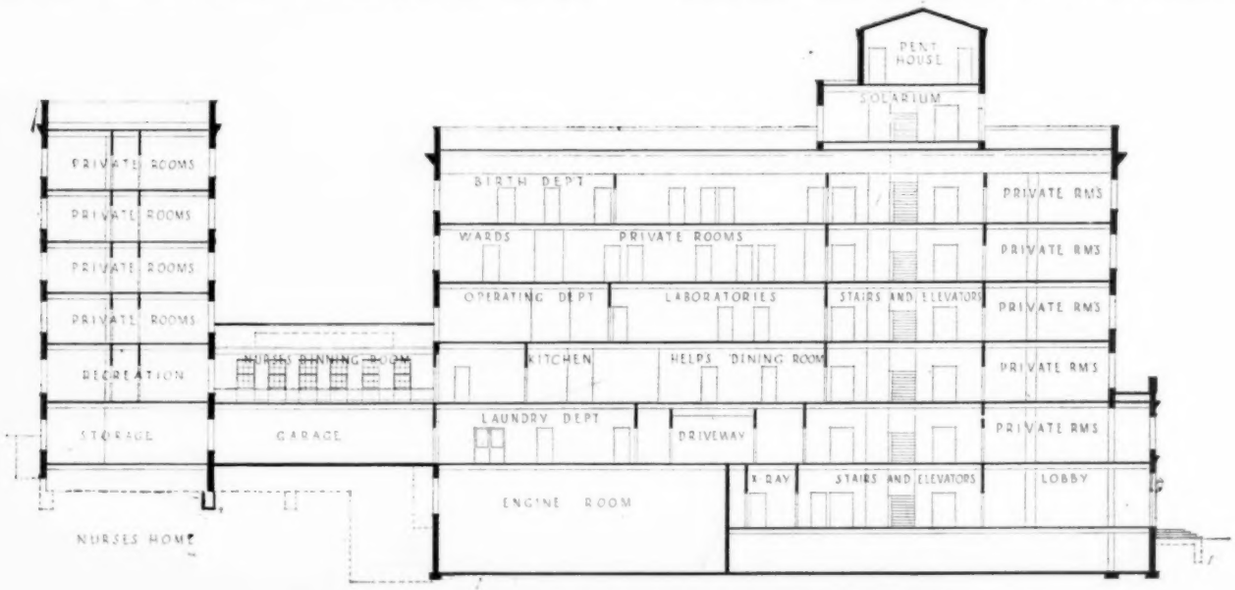


Fig. 1. Cross section of St. Luke's Hospital and nurses' home, Duluth, Minn.

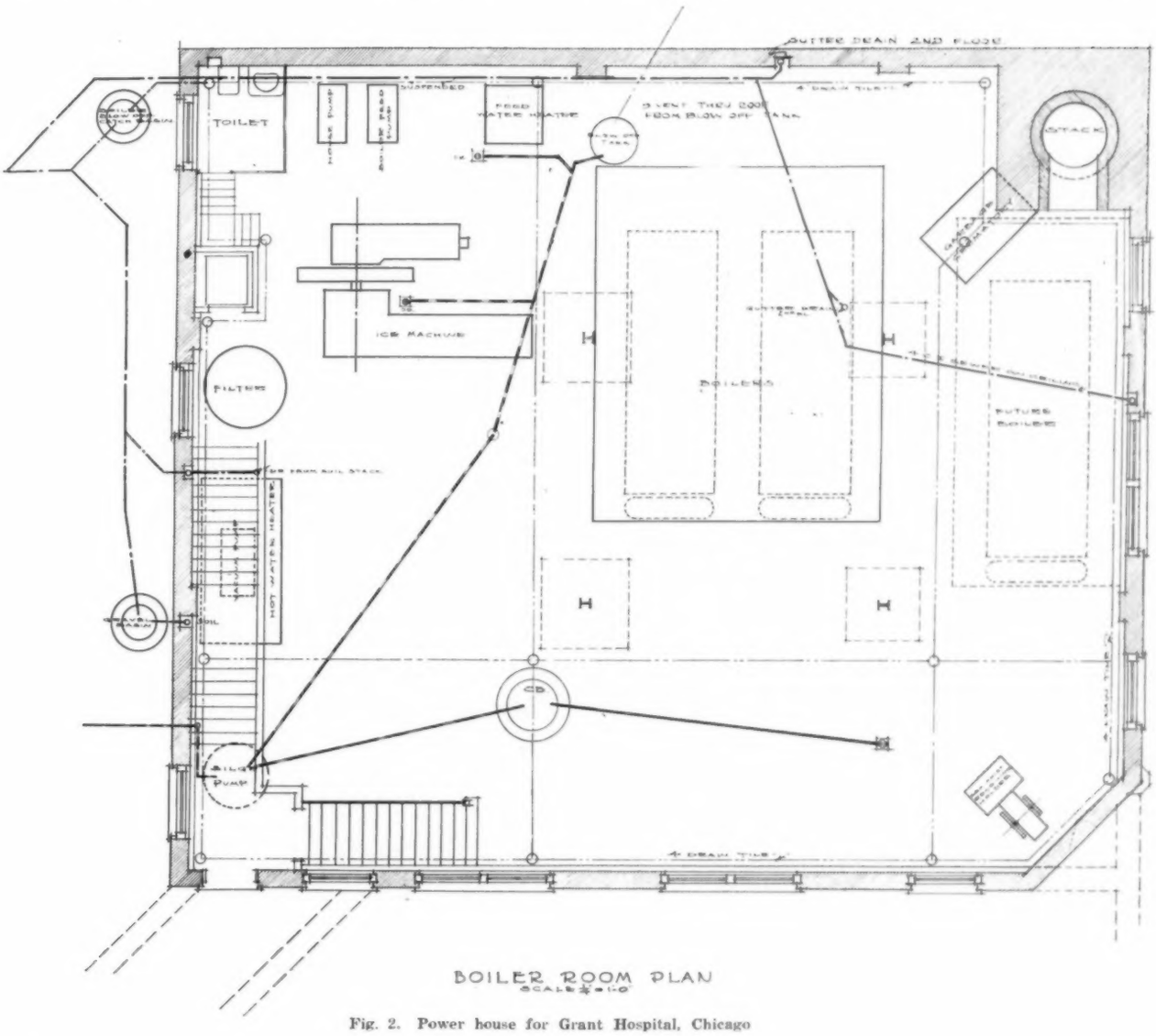


Fig. 2. Power house for Grant Hospital, Chicago

heating equipment. Each should be of adequate size to furnish all the steam required to operate the plant, so that either may be cleaned or given the attention required to keep it in safe working condition. The added cost of providing space for a third boiler and its auxiliaries is so comparatively small that space for an additional boiler should be provided. When the time for its use arrives, due to increased bed capacity, it will be in place.

In Fig. 2, the plan of the boiler house of the Grant Hospital, Chicago, illustrates the first case, and Fig. 6, taken from the Research and Educational Hospital of the Medical Department of the University of Illinois, Chicago, shows the plan of which only half of the boiler house and hospital have been built. When the addition to the existing institution is built the boiler capacity then required cannot be furnished by one boiler but several will be required. The plan for the new boiler house, however, has been arranged, so that the present chimney will be sufficient for the ultimate number of boilers.

Many hospitals cannot have separate elevators for visitors, patients and service, but no matter how many are installed they should be placed so that their use can be interchangeable.

Fig. 5 shows the basement and Fig. 4 the first floor of the Illinois Central Hospital, Chicago. Attention is called to the elevator hallway in the basement. Similar halls have been built into the upper floors, these halls being separated from the lobbies and corridors. The right hand elevator is generally used for visitors, and the one on the left for patients and food service. Either elevator may be used for any purpose.

Fig. 3 illustrates the plan for the proposed St. Cloud Hospital, St. Cloud, Minn. One of the elevators will have a rear door, so that it may be used for the transportation of food and pa-

tients. Food carts will be taken into it without contact with visitors, as the elevator will be loaded at the basement floor. This hospital will be built on a hillside and the main entrances will be where the level of the ground is at the elevation of the first floor. The slope of the ground is such that one side of the basements—of which there will be two in the main building—will be entirely out of the ground. A third sub-basement will be under a rear wing. Such basements allow the building of steam, water and other pipe lines in the basements and tunnels, and also permit horizontal transportation of supplies. Various kinds of equipment and prepared food may be sent to all parts of the building without crossing the paths frequented by the patients, visitors and hospital attendants. Secluded transportation of bodies to and from the mortuary rooms is assured by a separate passage used exclusively for that purpose.

Hillside sites seem to afford advantages in the construction of basements that level sites do not. The cross section of St. Luke's Hospital and Nurses' Home, Duluth, Minn., (Fig. 1) shows that the street adjoining the home is 25 feet or two floors above the street in front of the main entrance of the hospital.

The boiler room of this hospital is at the lowest level. The coal bunkers extend two stories, so that coal may be dumped directly into the bunkers through the openings in the pavement.

The first story of the hospital has no rooms for patients. It is used wholly for administration purposes, assembly rooms and laboratories. The ambulance entrance is at the level of the driveway and second floor so that the ambulance cases are discharged directly to the emergency dressing rooms without coming in contact with any of the activities that are taking place on the first floor.

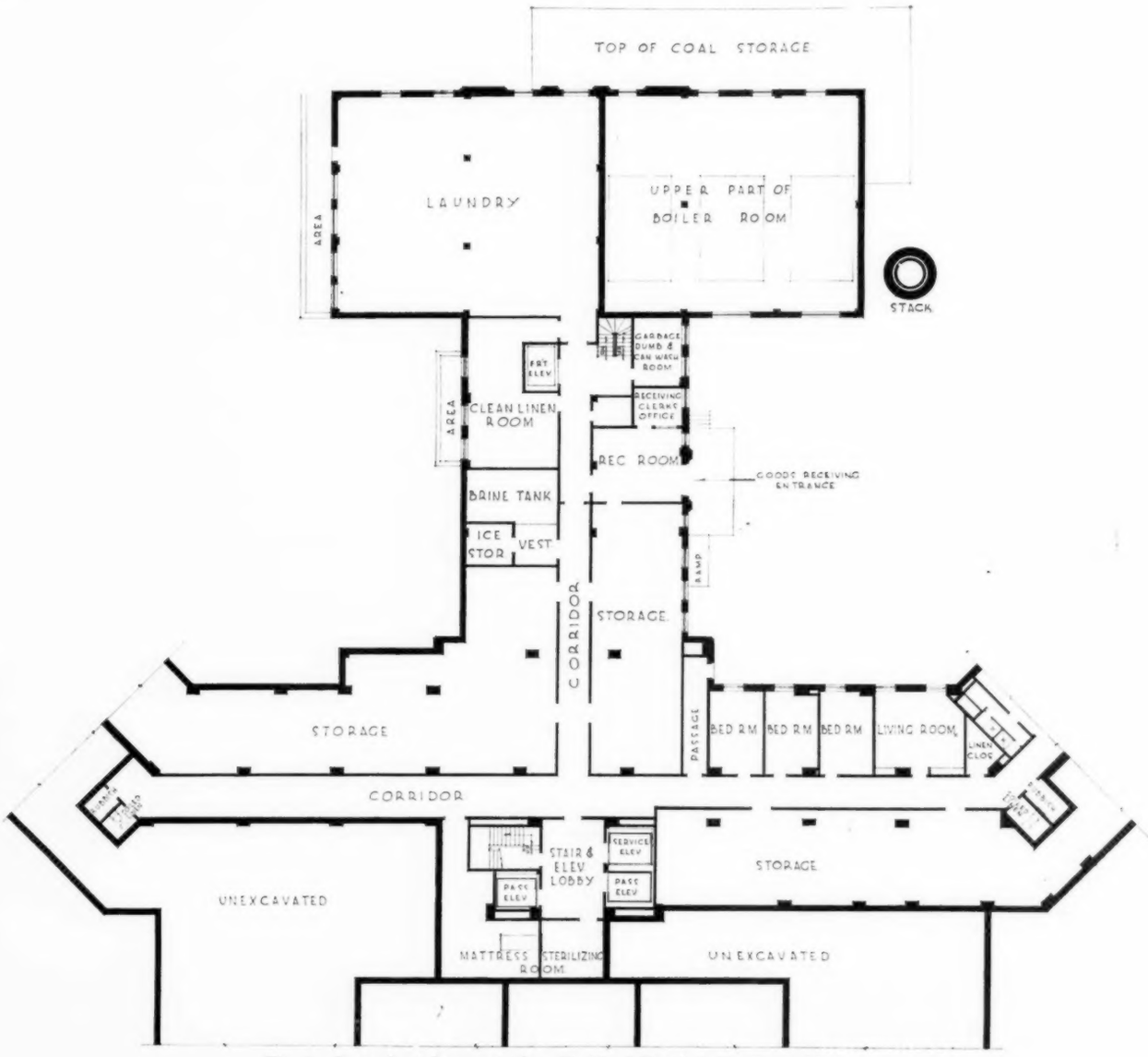


Fig. 3. Part of sub-basement plan, St. Cloud Hospital, St. Cloud, Minn.

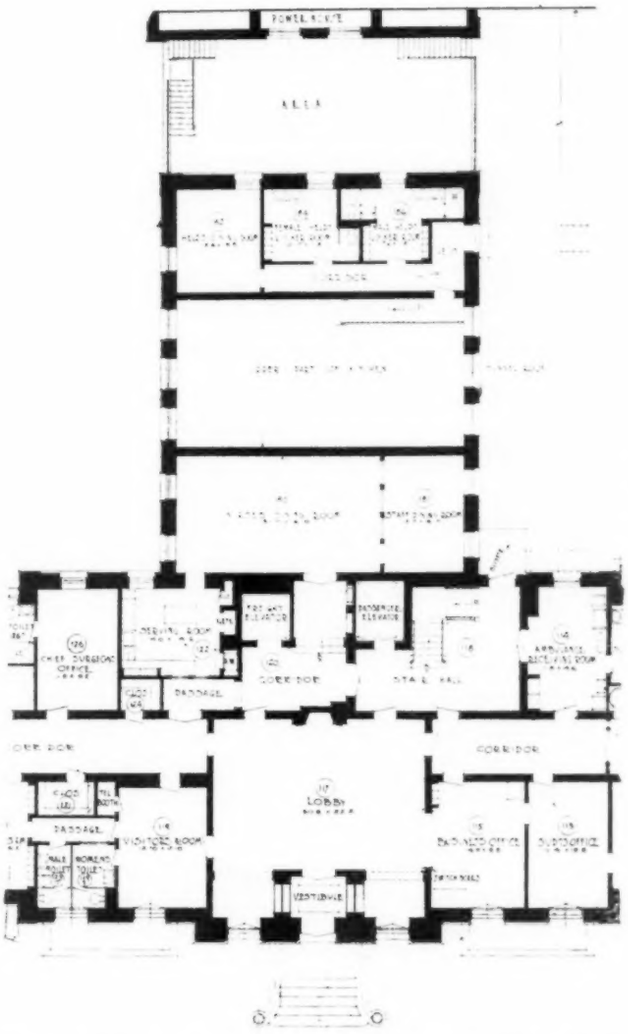


Fig. 4. Section of first floor plan, Illinois Central Hospital, Chicago

The first floor of the nurses' home, which fronts on the upper street and contains the nurses' living and dining rooms, is at the same level as the third floor of the hospital. The kitchens are on the floor in the rear wing of the hospital, which connects the two buildings. This location allows the serving of food to nurses, interns, domestic help, technicians and the sixty patients of the third floor, directly from the kitchen without using an elevator. The persons enumerated comprise about 60 per cent of the population of the institution. The food for the remaining 40 per cent must be transported in dumb-waiters and elevators. So economical an arrangement probably can be obtained only in the case of one-story buildings on a level site and multi-storied buildings on sloping sites.

Laundry and waste chutes should be placed so that soiled linen and waste may be deposited at the most convenient locations occupied by patients, and discharged into bins in a basement corridor or tunnels that are not used by patients or visitors. Here the soiled linen and refuse may be gathered by carts and taken to the laundry and incinerators.

It is so thoroughly accepted that no one except the patient and the surgical department personnel has any business in the operating department, that the customary placing of sterilizing room and workrooms for the preparation of dressings, is rather traditional and not based on analysis or judgment. There is no valid objection, however, to placing sterilizing rooms at a distance from the operating department. If they are located in a part of the building where the workers will be more comfortable and not in the way of the operating department personnel, and where the supplies may be stored and delivered to the several operating, dressing, delivery and other rooms, much confusion and discomfort due to excessive temperatures will be avoided. Such an arrange-

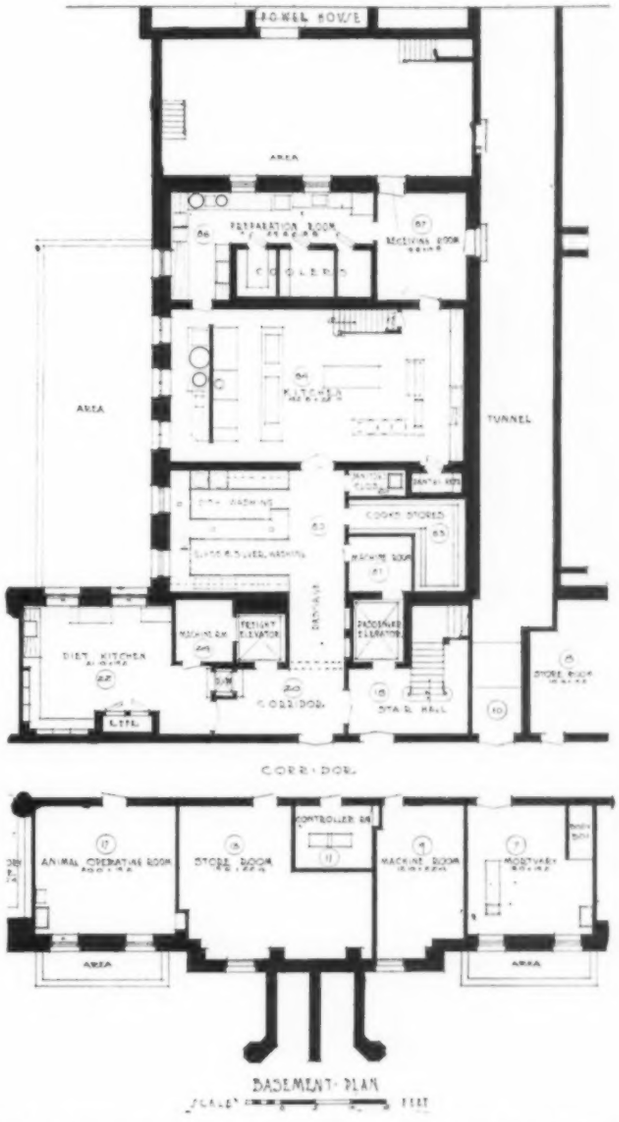


Fig. 5. Section of basement plan, Illinois Central Hospital, Chicago

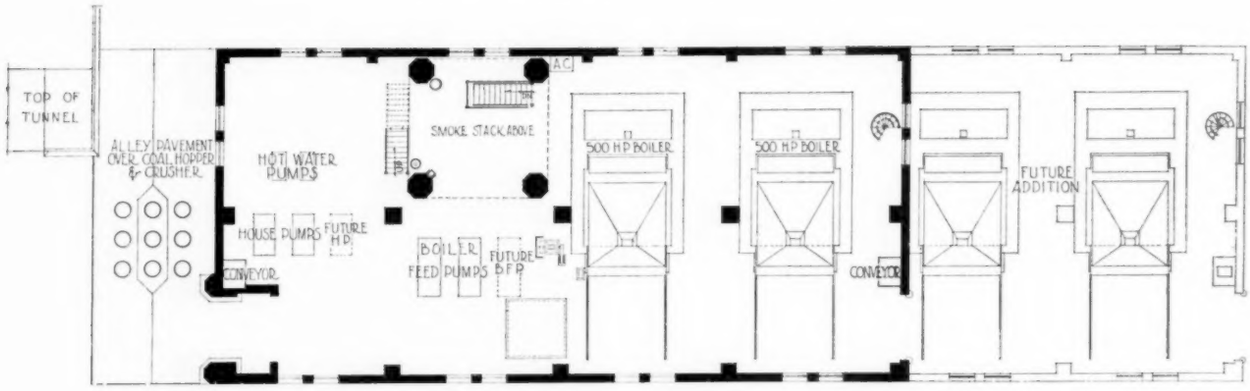


Fig. 6. Plan of boiler house, Research and Educational Hospital, University of Illinois, Chicago.

ment does not contemplate the omission of small sterilizing rooms in conjunction with the major operating rooms for the immediate sterilization of instruments.

Central Water Sterilizers

Large central water sterilizers are practical and convenient, inasmuch as unlimited quantities of sterilized water may be delivered at any point. To prevent contamination of the faucets by indiscriminate contacts, such plants should be installed only after a careful investigation of the entire sterilizing apparatus.

The "sink closet" of twenty-five years ago has grown into an important service. The place that now supplies the same function has changed its name to "utility room" and much work is done there that formerly was done where it was an annoyance.

Push button-control dumb-waiters or service elevators may be used to good advantage in the distribution of food and supplies without the attention of a maid or orderly. It is possible to load heated food carts adjacent to the kitchen, transport them to upper floors by push button controlled elevators and discharge them directly into serving pantries. Fig. 7 shows the serving room of St. Agnes Hospital, Fond du Lac, Wis., in which this feature of food transportation as well as the washing of the dishes has been solved successfully.

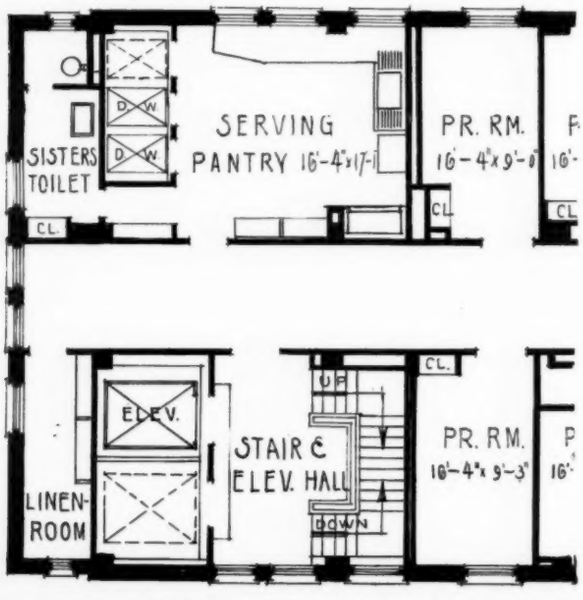


Fig. 7. Section of fifth floor, St. Agnes Hospital, Fond du Lac, Wis.

UNBREAKABLE?

By W. F. Schaphorst, Newark, N. J.

The word "unbreakable" should not be used to describe anything used in our industries that can be broken. We still occasionally see the word applied to such things as screws, bolts, wrenches, channels, but upon investigation it will usually be found that these screws, bolts, and wrenches are breakable.

Above all the word should not be applied to glass. In the days of the kerosene lamp, before electric lights were used to any extent, some lamp globes were called "unbreakable" but I saw several of those "unbreakable" lamp chimneys break on being dropped to the floor as a test.

Not long ago an interesting article on high pressure steam boilers devoted considerable space to showing how a water gauge glass was made specially to resist the high boiler pressure of 1,200 pounds per square inch. Yet in the same issue of the publication containing the article, in the advertising pages, was an advertisement showing an ordinary looking gauge glass with the slogan in bold print, "The Unbreakable Gauge Glass." If this gauge glass is unbreakable, why should engineers foolishly go to the trouble of designing a complicated and expensive water glass of an entirely different type for the sake of resisting a mere 1,200 pound pressure?

Not so long ago manufacturers of water tube boilers made it a practice to include the word "safety" in the names of their products, as, for example, "The Jones Safety Boiler Company." A modern list of manufacturers of water tube boilers does not show the word "safety" anymore. It has been abandoned. This word "safety" is surely more truthful than the word "unbreakable." A boiler manufacturer does not call his boiler an "unbreakable boiler" although boilers are made of one of the strongest materials known—steel. Yet we have some manufacturers of products much weaker than steel boldly calling their goods "unbreakable".

PLANNING BUILDINGS FOR OUT-PATIENT SERVICE: GENERAL PRINCIPLES*

By Michael M. Davis, Ph.D., Executive Secretary, Committee On Dispensary Development of the United Hospital Fund of New York,
New York

BUILDINGS soundly planned to house and to facilitate modern and efficient medical practice for ambulatory patients are an outgrowth of the last few years. It is gratifying that it is now possible to point to a number of examples of both large and small buildings satisfactorily designed for this purpose, and to outline on the basis of such existing constructions, certain fundamental general principles according to which buildings for out-patient service should be designed.

Of some 3,500 clinics that have been established in this country during the last twenty years, a large majority have been located in converted quarters. Hospitals have established new out-patient departments in rooms originally intended for other purposes, and the numerous small clinics unattached to hospitals, which have been started as a result of public health movements, have generally been fitted into dwelling houses, stores or offices. Figures collected by THE MODERN HOSPITAL show that this situation is changing; for, while the adaptation of existing quarters for out-patient service continues to be a practical problem, the projection of new buildings or new construction is becoming frequent. Taking the two years of 1923 and 1924 together, of over 500 hospitals (mostly non-teaching institutions) reporting to the magazine, 34 had constructed during one or the other of these years new buildings for out-patient departments; 85 had new buildings projected; in 76 some new construction had been made; 83 had assigned more space to the out-patient departments without new construction, and in 87 improvements in the out-patient department quarters were projected but not yet undertaken.

The older types of out-patient construction, of which many examples yet remain, appear to have been based upon two traditions; first, that the out-patient department is an independent or disconnected unit, not especially associated with either hospital or public health work; second, that patients were expected to move or be moved in mass formation.

Failure to consider the coordination of out-patient department and hospital is illustrated by a case cited by Dr. S. S. Goldwater, director, Mount Sinai Hospital, New York:

"A plot was selected for a new hospital, designed to replace an old one. In the old hospital, work had been carried on for thirty years or more without a dispensary. Under these circumstances, the trustees did not hesitate to accept a site that was large enough for a hospital minus a dispensary. A few years later the need of a dispensary became apparent. After an unsuccessful attempt to secure adjoining property, a dispensary was built in another street, entirely separate from the hospital. It then became necessary to duplicate the heating plant, x-ray plant, and much besides. It is easy to imagine the inconvenience under which the two branches of this hospital, physically divorced, carry on their joint work."*

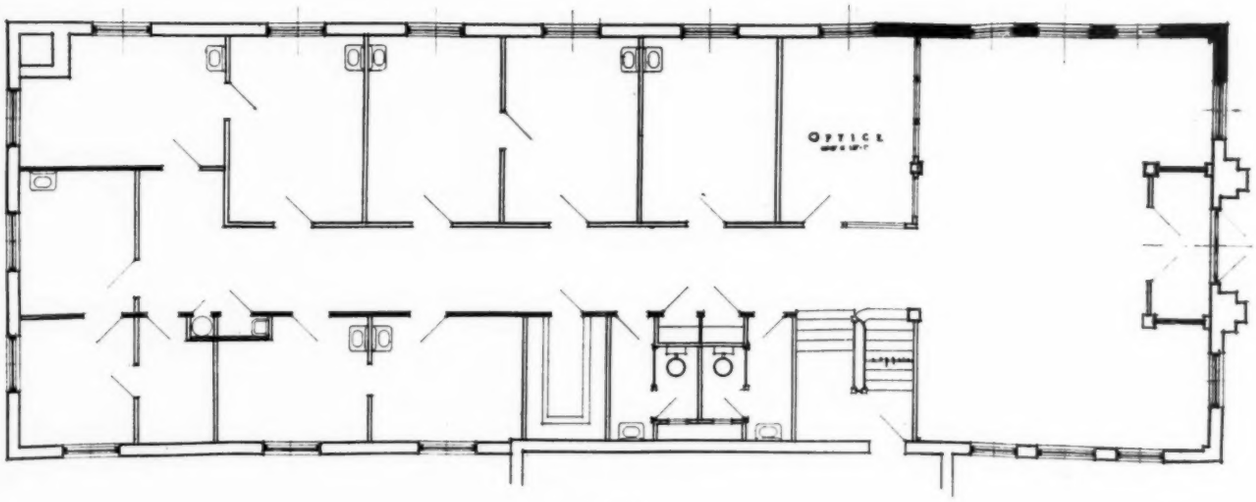
Among other illustrations may be mentioned the out-patient department of a large urban hospital in which the increasing laboratory services required by the advancing standards of the out-patient staff led to independent development of laboratories duplicating in part the much more adequate laboratory services already established in the hospital. Another example is a hospital whose medical staff has to walk about four hundred feet in the open air to go from the wards to the out-patient department, out-patients referred to the x-ray department having to go the same distance in the opposite direction in order to secure the service. Equally obvious, if less flagrant, illustrations are found in most hospitals and out-patient departments planned before the War, where the record rooms, admission systems,

Mix It With Brains!

THE time has gone by when a string of rooms along a corridor constituted a clinic. Recent developments have shown that definite and practical principles are evolving for the planning of out-patient buildings adapted to the specific work that clinics have to do. These principles and their application to the details of layout and construction, need careful study by architects, administrators, and physicians.

*This article is condensed from chapters to appear in a forthcoming book, "Clinics, Hospitals, and Health Centers," to be published by Harper and Brothers, New York.

*"Basic Ideas in Hospital Planning"—S. S. Goldwater, M.D., THE MODERN HOSPITAL, April, 1921, page 305.



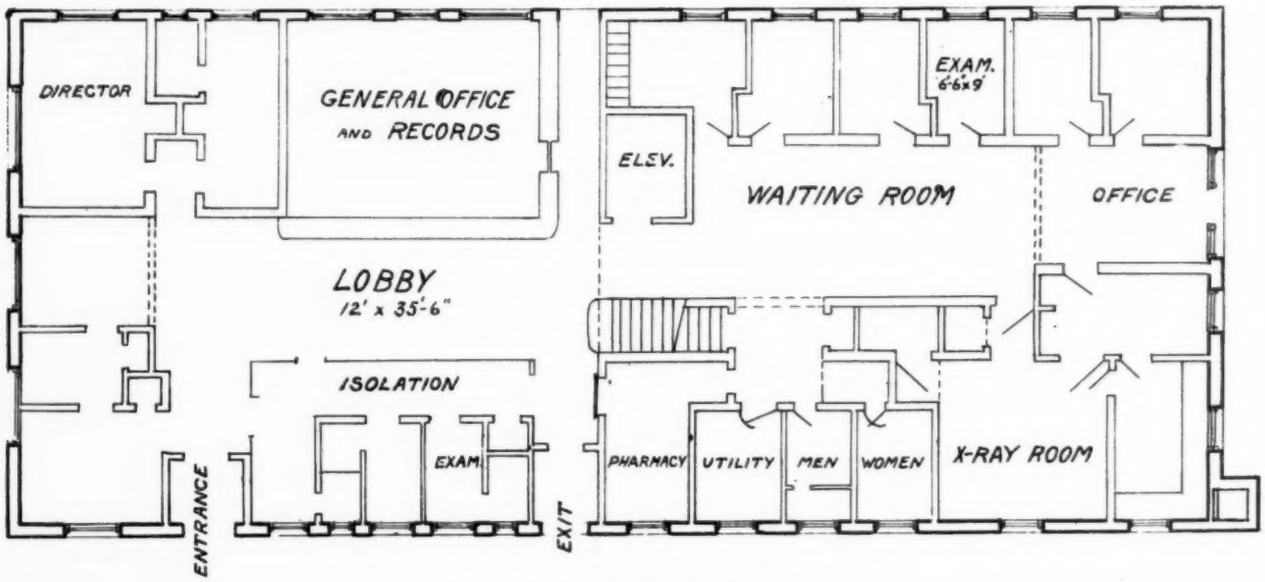
Plan A.

laboratories and general space relations of in-patient and out-patient services are so disconnected as to mean inefficiency and wasted effort, and usually additional and unnecessary expense in maintenance.

The internal planning of out-patient buildings needs consideration of the specific work that is to be carried on within them, irrespective of their connection with the hospital. An instructive contrast is furnished by a comparison of the main floor plans of two institutions, both in the Middle West:

One of these was designed years before the other. The two buildings have nearly the same shape and floor area. Plan A, the older building, is practically a series of large examining rooms (10½ by 15 feet approximately) around both sides and at the end of a narrow, poorly ventilated central corridor, with a large waiting room at one end. Examining rooms of this size generally invite mass work with patients. Patients have to be distributed to the examining room from the waiting room at one end of the building through a corridor 52 feet long and 7 feet wide. Provision does not appear to be made against crossing of traffic lines through the waiting room and around the junction of waiting room and corridor.

Plan B utilizes small examining rooms, promoting individual work, splits the waiting space into divisions appropriate to various functions, has a special waiting room for the admission of new patients on the left side, reception lobby in the cen-



—FIRST FLOOR PLAN—
SCALE = ¼" = 1'0"

Plan B

ter, waiting room immediately adjacent to examining rooms on the right. Definite and properly located space is assigned for records and for the isolation of infectious cases. Entrance and exit are planned with reference to minimizing cross traffic.

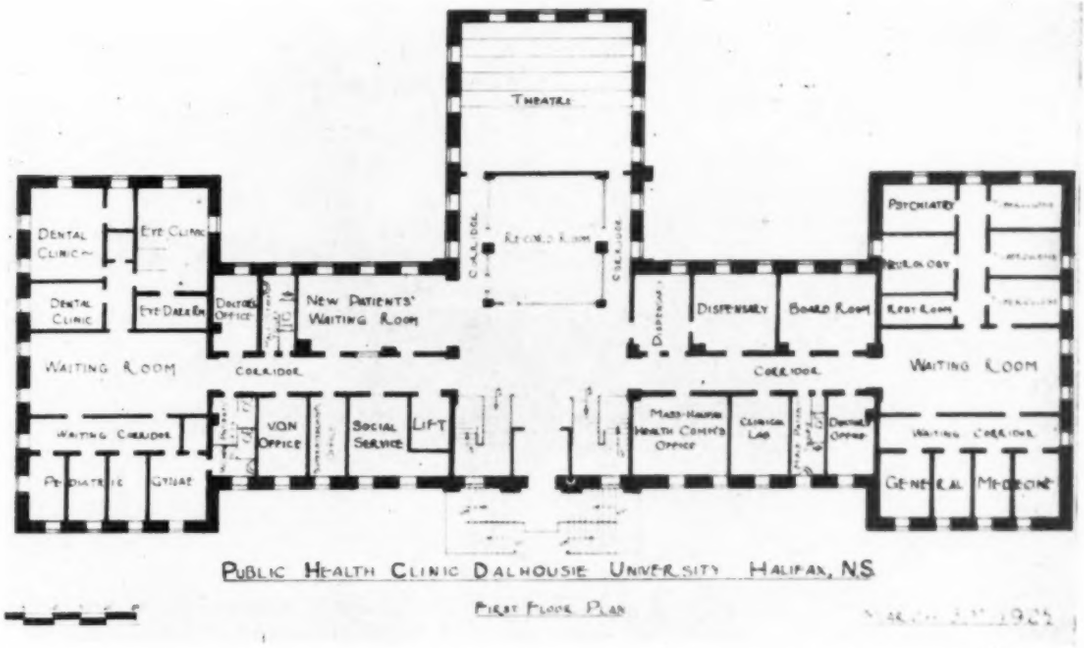
The correct principles of planning either hospitals or out-patient clinics are really to be derived from the fundamental principles of sound medical practice. Medical work with patients should be complete, and its various branches should be coordinated, both in diagnosis and treatment. With the growing variety and complexity of medical resources and medical service, these two points of completeness and coordination have become essential both to efficient medical practice by physicians as individuals and to efficient medical practice in institutions.

In practical application to the physical structure in which institutional medical practice is housed, these principles of completeness and coordination in diagnosis and treatment lead directly to three general principles of planning buildings for out-patient service:

1. Plan the out-patient department and the hospital as one unit, so that the complete facilities of the institution shall be available for a patient through all stages of disease of all types.

2. Plan space and arrangements so as to individualize the patient, avoiding mass action and realizing Virchow's precept which lies at the base of all really effective medical care—"Treat not only the disease; treat also the man."

3. Plan space and arrangements so as to invite and facilitate cooperative work among clinical departments, their coordination with one another



Clinic Building and Health Center, Dalhousie University, Halifax, Nova Scotia

Administrative Features. Central record room located in center of main admitting hall, separated from hall by partitions of desk height. Provision for rapid distribution of old patients to well lighted waiting rooms at ends of corridors. New patients separated from old and provided with special waiting room. Convenient location of social service to admitting hall. Dispensary located to avoid cross traffic. Small examining rooms with history corridors; each room provided with unit equipment and the other needed conveniences.

Medical Coordination. Combination, so far as possible, of services dealing mainly with children, opening off one waiting room: pediatrics, dentistry, eye clinic. Provision for therapeutic service and for x-ray department in basement. Small out-patient laboratory, main laboratories of affiliated hospitals being available in this way when necessary.

Health Center Features. Space provided for administrative offices of health organization. Rear of room forms a large lecture room suitable for public health meetings. Tuberculosis, venereal, pediatric (baby), and prenatal services provided for.

and with the laboratory, educational, therapeutic and administrative activities.

Some details may be given of the application of these principles.

The out-patient department should be planned as an integral part of the hospital. This means:

Location of the out-patient quarters as conveniently as possible to the corresponding professional services in wards and rooms, so as to facilitate work by the same professional staff in both branches of the service. In the teaching clinic this involves the further consideration of convenience of the out-patient department to space used for teaching and for instructors' offices.

Planning as one unit the admission work of the hospital and the admission work of the out-patient department, or at least that portion of the out-patient admitting which is concerned with the "new" patients.

Centralizing in one unit the space for records for both in-patient and out-patient services.

Locating laboratories with regard to their accessibility to both out-patient and in-patient services. This is especially important in the case of those laboratories, for instance, like the x-ray department, which must receive the patients themselves and not specimens, and which are likely to serve more out-patients than bed cases.

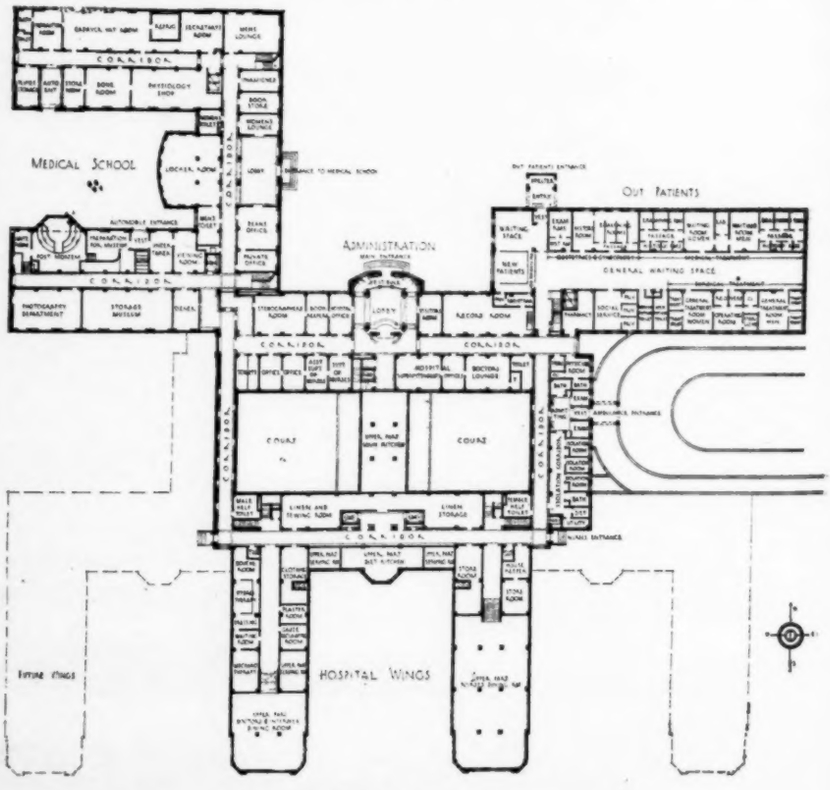
Locating likewise various clinic services, physiotherapy, electrotherapy, hydrotherapy, pharmacy, which are largely used for ambulatory as well as for bed patients, so as to be convenient to the out-patient department and so as to avoid duplication of space, equipment and administrative personnel between the in-patient and out-patient branches.

In four important medical centers where hospitals and out-patient departments have been built within the last five years or are now under construction, all these principles are well illustrated; namely, the University of Colorado School of Medicine, Denver, Vanderbilt University Medical School, Nashville, Tenn., University of Rochester Medical School, Rochester, N. Y., and the new out-patient department of the Johns Hopkins Hospital, Baltimore. Below are set down the main points derived from inspection of these plans, and two floor plans, all that space permits, are reproduced as illustrations.

The question may arise, how far these more or less ideal principles can be carried out by a non-teaching institution, particularly in a hospital of small size with a small out-patient department. The answer is that size and the presence of medical teaching both introduce complications rather than simplifications and render it more, and not less, difficult to plan a unified hospital and out-patient department. It is, of course, true that when an existing hospital must build an addition for an out-patient department, it is not so easy to bring about the degree of unification between the in-patient and the out-patient service that is practicable when, as in the case of the medical schools just described, the entire institution can be planned as a whole.

An example of a well-planned, large out-patient department is that of the Boston City Hospital. Here it was necessary to build a separate building for the out-patient service on the hospital site, making impracticable certain unifications in respect to admitting and record rooms. The main floor plan of this six-story building is printed herewith, and in the adjoining box are comments on some of the distinctive characteristics of this out-patient department.

Among examples of small out-patient departments in which a partially successful effort has been made to bring about coordination with the hospital and in which certain special requirements have had to be met, such as adaptation to both special types of patients, are the plans of the out-patient department of the Macon City Hospital, Macon, Ga., which were published in E. F. Stevens' *The American Hospital of the Twentieth Century*, page 234; and the plans of the out-patient building of the New York Infirmary for Women and Children, New York, published in



Ground floor plan.
University of Colorado School of Medicine and Hospital, Denver
Illustration by courtesy of Maurice B. Biscoe, William E. Fisher and Arthur A. Fisher, Denver

Points and Principles of Out-Patient Building Illustrated by Four Recently Constructed Clinics Associated with Medical Schools

I. Vanderbilt University Hospital, Nashville
II. Johns Hopkins Hospital, Baltimore
III. University of Colorado Hospital, Denver
IV. University of Rochester Hospital, Rochester.

1. *Coordinated admitting service for hospital and out-patient department.* In I and IV admitting office of hospital adjoins main waiting room and admitting service of out-patient department. In III the admitting quarters of hospital and out-patient department are near together. In II they are also closely related, with ample examining rooms and diagnostic facilities available. Ambulance entrance and receiving ward are closely related to joint admitting service in I, III and IV.
2. *Records.* Record rooms for hospital and out-patient department adjoin one another in I, II and IV, forming the basis for a unfied record system. In plan III there is one record room for both hospital and out-patient department.
3. *Waiting Rooms.* A central admitting and distributing unit on the first floor of all four plans feeds to decentralized waiting rooms for each department, in plans, I, II and IV. In plan III a large central waiting room is on each of the two floors of the out-patient department, feeding directly to clinics opening from this waiting space.
4. *Space for social service* adjoins the central admitting and distributing unit in all plans.
5. *Small examining rooms* with occasional larger rooms for consultation or teaching. History corridors separating small rooms from main corridors.
6. *Pharmacy* for hospital and out-patient department united. Location of dispensing pharmacy for out-patient service such as to avoid crossing traffic lines.
7. *Correlation of hospital out-patient department and medical teaching.* Laboratories and teaching units, such as classrooms (and in some of the plans also offices of professors and assistants) located conveniently to out-patient services. X-ray department located conveniently to both hospital and out-patient clinics.

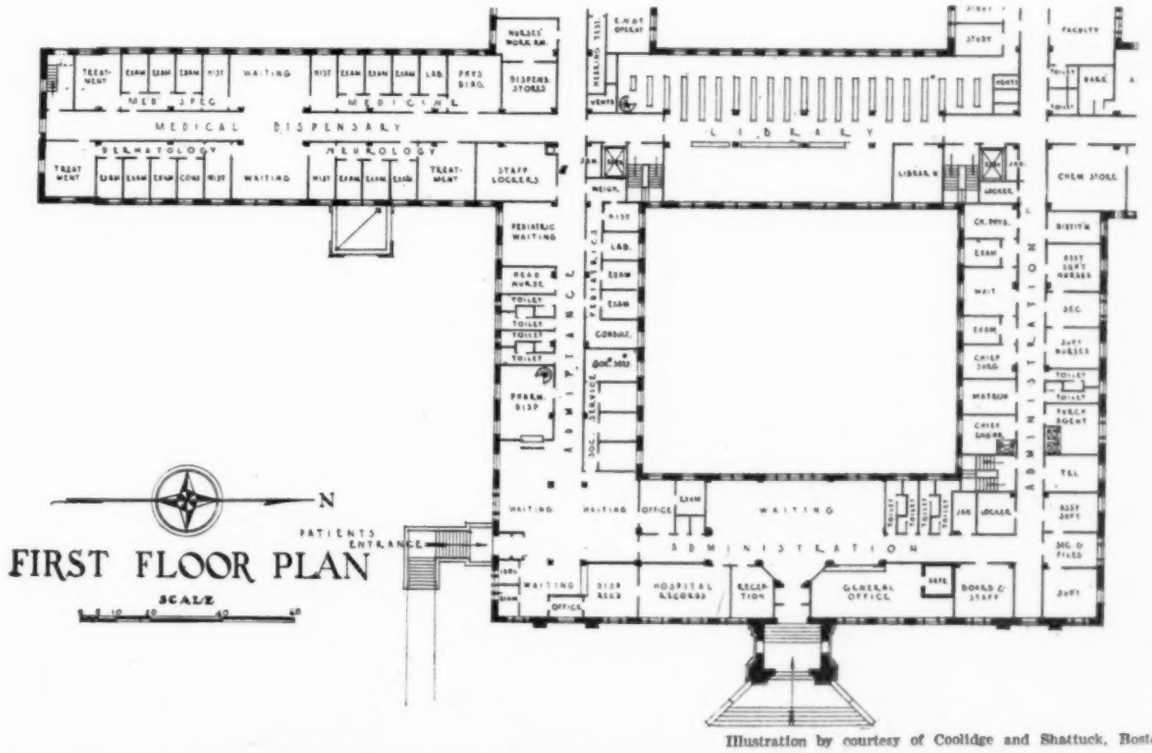


Illustration by courtesy of Coolidge and Shattuck, Boston

Section of first floor plan of Vanderbilt University Hospital, Nashville, Tenn.

THE MODERN HOSPITAL, October, 1924, pages 314-15.

Proper relations of the various specialties and departments within the institution itself are one phase of the principle of coordination. Another important phase is the coordination of the work of the hospital and its out-patient department, taken as one unit, with outside agencies in the community. This means the conception of the hospital as a health center. It may be illustrated by the plan of the Dalhousie Clinic, at Halifax, Nova Scotia. This building is located at the center of a group of hospitals and close to the medical school. It is, as will be seen, a teaching as well as a service clinic, and also includes preventive medical activities, such as are usually associated with public health work, and it provides administrative offices for several local health organizations. The detailed planning of the Dalhousie Clinic may be studied as an illustration of the principles of out-patient planning noted on the box accompanying the first floor plan.

Something may well be said regarding the general layout and type of building desirable for out-patient work. For the clinic that is small or of moderate size and for a site in which ground is unrestricted, the building may well be only one story high and should not be more than two. This will permit of the use of a compact rectangular building with a central waiting room and skylight. A second story may be added with rooms surrounding a corridor open to the central court.

Under ordinary conditions, however, when the building must be of more than two stories, or must be adapted to the plan of the hospital with which it is associated, the square type of building should be avoided, as the central portion will be dark, or there will be much waste space in a

Out-Patient Department of Boston City Hospital

The out-patient department of this large municipal hospital is a six-story separate building on a corner of the hospital grounds, connected by a tunnel with the main hospital. While not part of a university group, medical teaching is carried on.

1. Central record room for out-patient department. This is not unified with hospital record room, which is in another building. Record space, part on ground floor, part on mezzanine; distribution thence by Lamson mechanical carrier to each floor; from each floor station by messenger to individual clinics.
2. Note in corner of waiting room on each floor provision of space for secretary, controlling waiting room and distribution of records.
3. Central waiting room on each floor located at corner, distributing directly to clinic examining rooms as patients are called. Certain clinics have additional small waiting rooms close to examining and treatment units.
4. Provision for pediatrics on main floor, with adequate isolation facilities.
5. Provision for social service in connection with the management of each clinical department.
6. Small examining rooms, with complete unit equipment, individualizing each patient. The few large rooms are for minor operations, surgical dressings, and refractions, and for teaching purposes.
7. Departmental laboratory on each floor adjoining specimen rooms, and rotating drums for passing specimens into laboratory. (X-ray is in main hospital where certain laboratory work for out-patient department is also done).

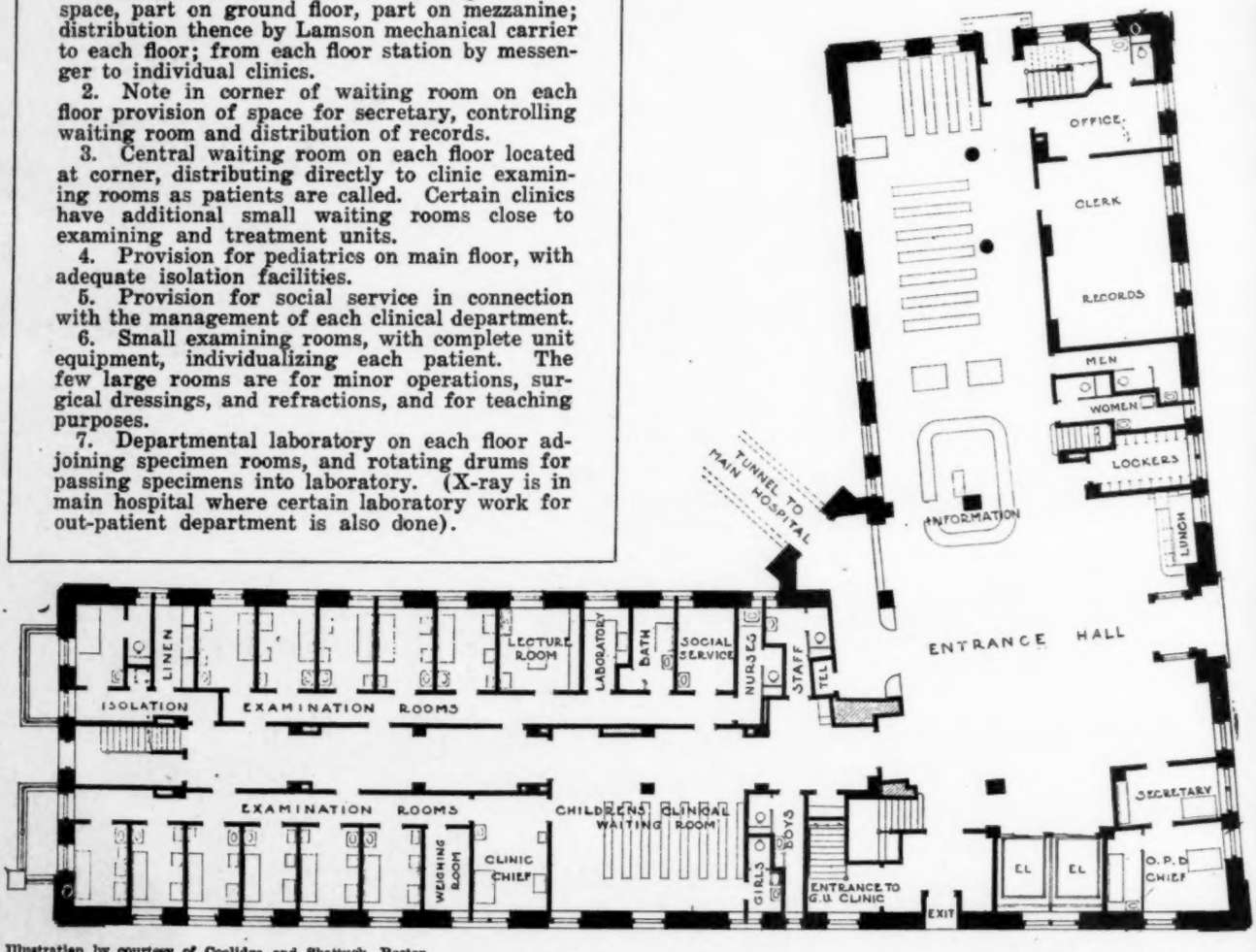


Illustration by courtesy of Coolidge and Shattuck, Boston.

FIRST FLOOR PLAN

Building for out-patients, Boston City Hospital, Boston

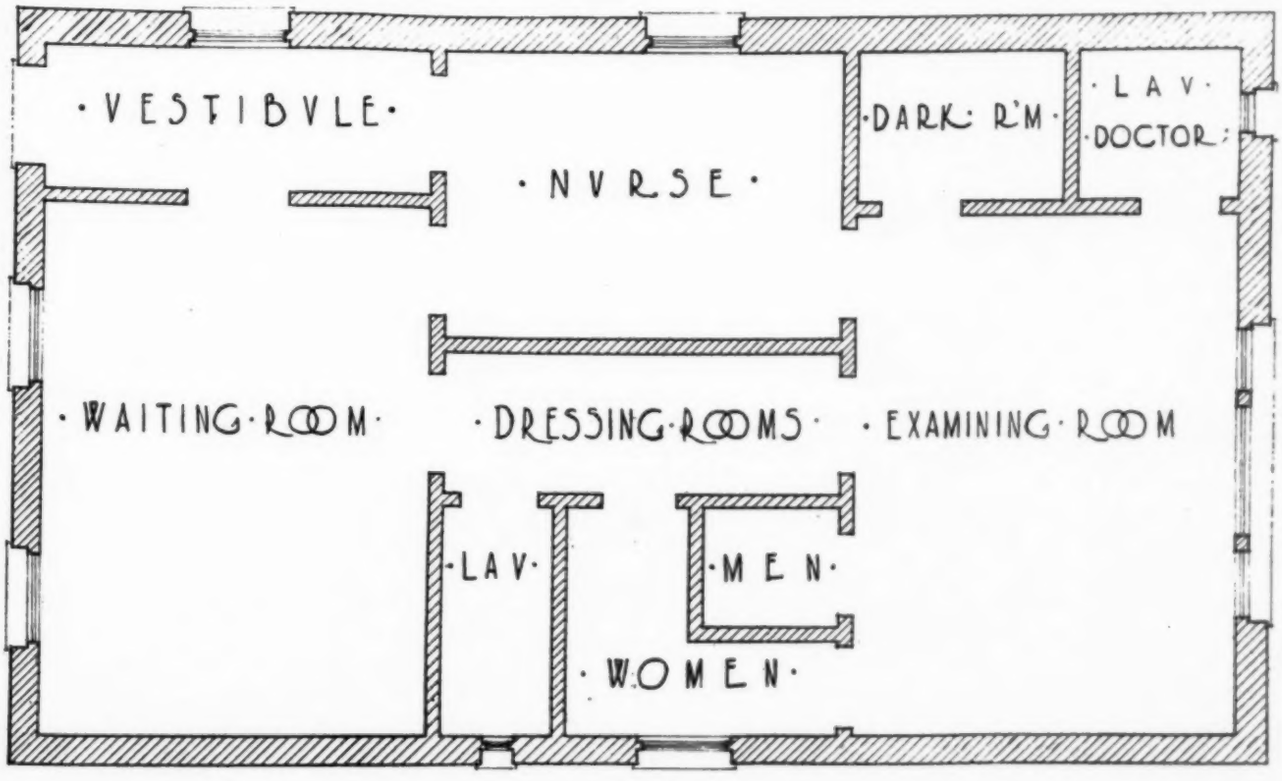
square building. A pavilion thirty-eight feet in width is sufficient to provide for a central corridor, examining rooms and history corridor on each side, but a pavilion of forty feet or more adapted to hospital purposes is acceptable. Ample demonstration has been made that a multi-storied building is not only well suited for out-patient work, but is much to be preferred except in the case of small clinics. It has been fairly well demonstrated that in dealing with large numbers of such movable units as out-patients, distribution vertically is much more economical in time and in administrative staff, and consequently in expense, than horizontal distribution in a low building covering a large area.

An L, U or H layout has advantages for a large out-patient department, since the admitting, distributing and administrative units can be centrally located at the angle of the L or the midpoint of the U or H. If a long building, such as an ordinary hospital pavilion, must be used, it is best to have the main entrance and the admitting and distributing units in the center of the pavilion rather than at either end. This will facilitate the distribution of patients and the regulation of traffic without crowding and confusion.

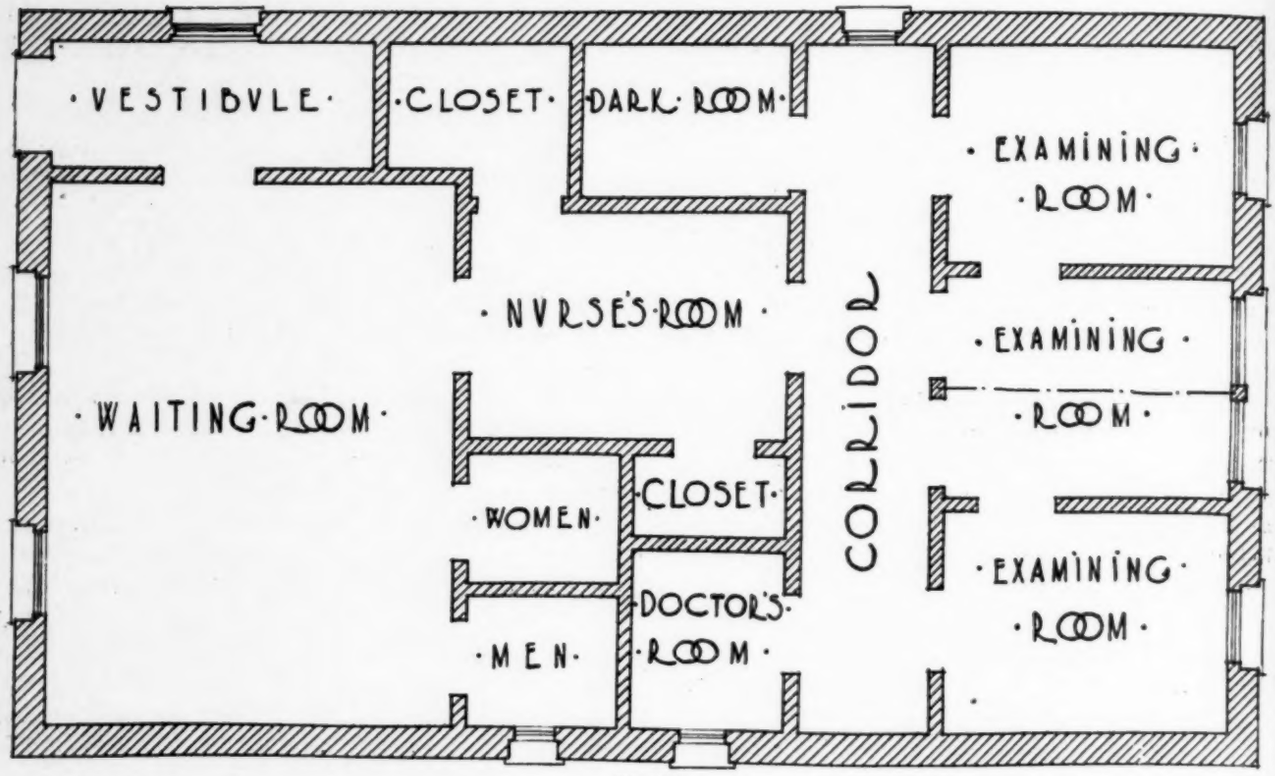
North light is not inadmissible for out-patient rooms and is desirable for certain clinics, such as the dental.

The hospital frequently faces, as has been said, the necessity of locating or re-locating an out-patient department in quarters originally used for wards or for administrative purposes. Among the chief difficulties usually faced in such adaptation of quarters are the large rooms and the lack of sufficient plumbing. Seven-foot partitions, often best of wood and glass, can be used effectively to make examining and treatment units, but some fully partitioned rooms must be left to secure quiet and complete privacy for certain types of work. If permanence is not a consideration, cheaper forms of partitioning may be used, such as beaver board, especially for dressing booths. Generally speaking it is best to treat the entire available floor area as a unit and re-plan it completely, so far as bearing partitions and other unchangeable factors permit.

When, in 1921, the Clinic of Cornell University Medical College was reorganized and enlarged on the basis of a pay clinic, the problem was faced of utilizing an existing building, which was of first-class construction, but which had very large rooms. These were entirely unadapted either to the privacy required for patients or to carrying the greatly increased number of cases that followed the transformation of the clinic to a pay basis. Every square foot of floor space had to be used to the best advantage. With this in view, a room twenty-six feet by twenty-one feet, in which formerly two doctors of the general medical department had been accustomed to work, was cut up by part partitions so as to accommodate



Plan X



Plan Y

Before and After Taking Thought

Comparison of Two Plans for a Small Clinic or Health Center (For General Medical, Tuberculosis, or Children's Work)

In Plan X, the examining room is much larger than necessary for one doctor. In Plan Y the same space is arranged so as to make it possible for two doctors to work, if desired. The capacity of the clinic is doubled by this arrangement of space, and patients will get better service.

A part partition can be put through the middle one of the three examining booths so that two dressing rooms will be created, making it possible for two doctors to work with different cases, if necessary, at the same time.

If the middle room is not divided and only one doctor is engaged, he will keep two examining rooms going, in one of which the patient is dressing or preparing for examination, while in the other a patient is being examined by the doctor, who passes from one room to the other.

Nurse's station in Plan X is such that she cannot control entrance and exit to dressing rooms. Two persons besides the doctor would be required to operate Plan X if there were any considerable number of patients.

Toilets in Plan X are not accessible to waiting room.

Plan X has two doorways opening from the vestibule. Plan Y has only one. Two doorways will cause confusion on the part of new patients and interruption of the nurse.

There is no closet or storage space in Plan X.

seven doctors and patients, with a history booth and an examining booth for each individual and necessary alley space.

The adaptation of a detached house, with windows on all sides, to the purposes of a small clinic or health center is a not infrequent problem in small communities. The two accompanying plans X and Y might be entitled "Before and After Taking Thought." "X" illustrated wasted space and confusing arrangements for the management of patients. In "Y" the same space is re-planned in accordance with better principles. The comment with the plans brings out the many details.

A similar problem faced under city conditions in which light and air are available only in the front and rear of the building is shown in the adaptation to clinic purposes of the old-fashioned houses that were made the home of the East Harlem Health Center, New York. These plans were printed in *The Nation's Health* for March, 1922, page 182.

Those responsible for planning buildings for out-patient work, whether new or old, may be assisted by some practical suggestions that follow

from the general principles previously laid down. These are listed somewhat in the order in which they are likely to arise in the course of planning:

Ten Practical Principles

1. Define the job; decide upon the kinds of work the clinic is to do, as a basis for estimating the number of patients to be expected and their age and sex distribution.
2. Plan tentative schedule of working hours for the various kinds of service as a basis for estimating floor space required.
3. Unify out-patient department with hospital, studying out one by one the closest possible interrelation of each medical and administrative element.
4. Unify the medical services and the specialties by providing a central record room.
5. Provide for flexibility and adaptation to future developments by planning so that many of the rooms can be used for more than one specialty with little or no change.
6. Individualize the patient through arrangements that make for privacy and against mass action.
7. Plan probable traffic lines with great care in admitting hall, corridors and rooms, so as to eliminate crossing or confusion in the movement of patients. Put the first stopping point (cashier's or information desk) far enough away from the entrance door to avoid "backing up" and congestion at this point.
8. Group medical units into convenient administrative units.
9. Consider maintenance costs as well as installation costs. Thus, floors and walls (shoulder height) are subject to very heavy wear in certain parts of a clinic; the most durable installations will prove the cheapest in such places. Unit equipment for each examining and treatment room (hand bowl, electric outlets, etc.) saves money by saving time.
10. Plan details on an efficiency basis; studying the location of lighting, heating, plumbing, and other fixtures, and of movable equipment with a view to greatest convenience for the specific work under way in each room or unit, and to saving steps for workers and patients.

A vast amount of detail about planning, construction and equipment might be added to this brief sketch. The requirements of special types of clinics—pediatric, prenatal, dental, and many others—furnish another field for discussion. A small but increasing number of buildings are now put up as clinics for group practice—for "full-paying patients," in which the aim is to provide, with the funds available, the best possible facilities for the efficient practice of medicine with office or ambulatory patients. This, however, is the same standard as that which must be imposed upon all out-patient clinics in the future. The criteria of sweet charity are being superseded by the criteria of scientific medical service.

The construction of clinics and health centers is passing into the stage when planning buildings with special knowledge of the nature and requirements of out-patient service is demanded. Architects, administrators and physicians need to study these requirements, as during recent years they have begun careful study of the spatial and mechanical requirements of the hospital. The kinds of jobs that should be done in a clinic, and the kinds of rooms and arrangements that best fit these jobs, need to be investigated with intelligence before blueprints are turned into structures of three dimensions. Many recent buildings indicate that progress has been made. When all is said, there is no better prescription for architect or organizer than the remark of the English artist, who was asked by a student, "What do you mix your paints with, Master?" and who answered, "With brains, Sir!"

LIBRARIES POPULAR IN VETERANS' HOSPITALS

Reports from libraries in U. S. Veterans' Bureau hospitals indicate that the ex-service men are, almost without exception, taking advantage of the opportunity given them to add to their education and general knowledge by reading books.

The hospital librarian is often called upon to "prescribe" and the bureau sees to it that only capable librarians are selected for this duty.

A few of the questions that one librarian reported and the subjects looked up are: How many teeth has a shark? How many toes has an elephant? When does spring begin? Address of places to buy English bull dogs, pictures of trellises, Monroe doctrine, diseases of dogs, life of Florence Nightingale, Socrates, Joan of Arc, Mother's Day poems, Don Quixote in the original, oil geology and refining, books in Latin, Spanish and German as well as subjects more common such as poultry raising, photography, newspaper work, advertising, law, engineering, radio, psychology, poetry, travel.

The total number of volumes reported on hand from all hospitals is 129,385 while the average monthly circulation per hospital from libraries where librarians are on duty is 1,297.

The largest circulation reported from any one hospital library for one month was from Hospital No. 60, Oteen, N. C., and numbered 4,885 volumes, 38 per cent of which were non-fiction. Seven per cent of the books so circulated were charged to patients who came to the library, 15 per cent to personnel of the institution and 78 per cent to bed patients.

These figures indicate very clearly the necessary emphasis placed upon the personal work the librarian does in the wards of the hospital.

There are fifty Veterans' hospitals, thirty-nine of which have librarians and all have book collections. A good assortment of magazines is also subscribed for, for each hospital, for use in the library and for distribution to bed patients.

HOLD FAST NAPKINS

A doctor in a Michigan hospital noticed that some patients had difficulty in keeping the napkins in place while eating. Napkins frequently fell to the floor, resulting in annoyance to the patient. This observation led to the development of a simple little addition to the napkin, consisting of a loop that could be placed around the patient's neck, each end of which could be snapped, by means of a clip, to the two upper corners of the napkin. In this way the napkin was kept in place, and both bed clothes and garments were protected.

PLANNING FOR REFRIGERATION

By Frank Sutton, Consulting Engineer,
New York

THE question of refrigeration and ice making in a modern hospital is one that should receive most serious consideration. There are a number of factors that enter into the question which depend a great deal on the size of the building. Whether the hospital consists of one building or a group of buildings, the number of patients to be cared for, the cost of operating different methods of refrigeration, and, in some instances, the question of the use of natural ice, enters into the matter. This is especially true in a small hospital that is located close to a pond or lake where there is good water. Even under these conditions the use of natural ice is gradually being dispensed with, because of the labor involved in handling it.

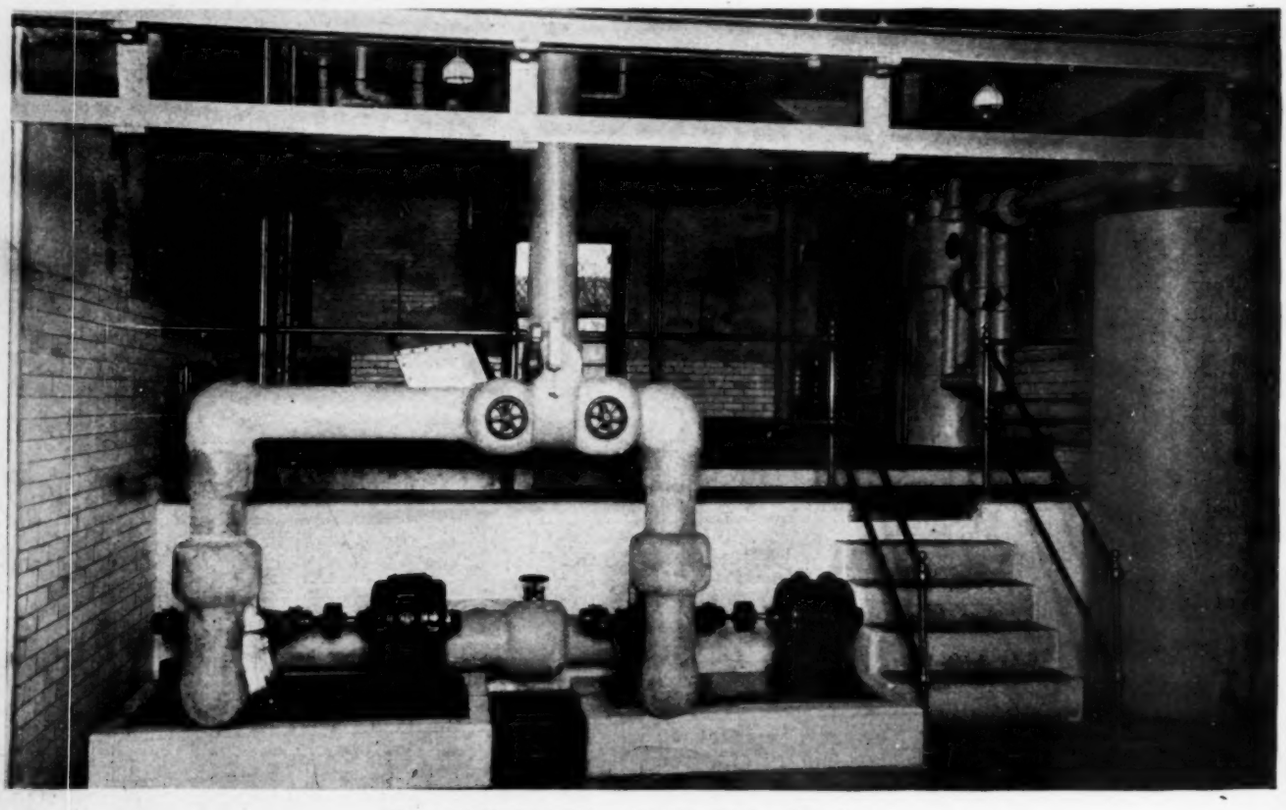
It is not the object of this article to enter into a too technical discussion regarding the question of refrigeration but to deal mainly with the most advisable method to pursue in hospitals of more than fifty-bed capacity. However, it would be well to describe briefly the different methods of refrigeration, their advantages and disadvantages.

Refrigeration means the lowering of the temperature of any substance or material below the temperature of its surroundings by the abstraction of heat from it. It also means continuing the extraction of heat from the refrigerator or enclosed space in order to keep the body at a lower temperature. These temperatures vary according to the material to be stored, such as meats, vegetables, milk, butter and eggs.

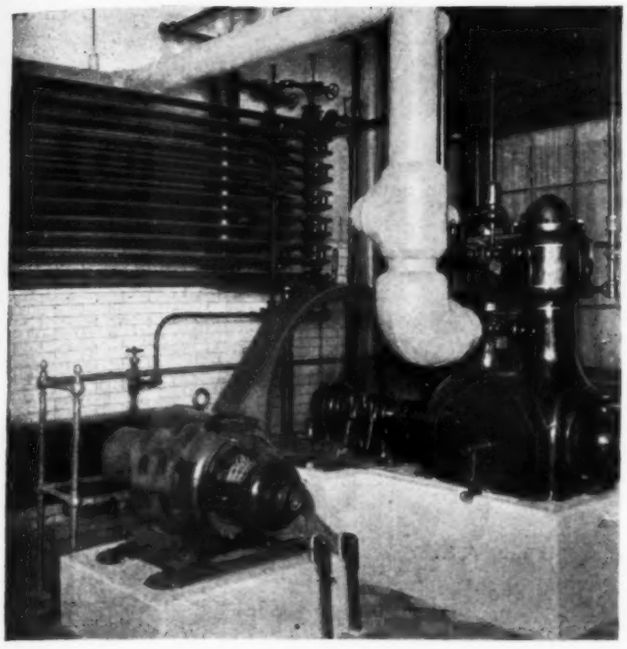
There are at present four general systems employed for producing artificial cold, namely: (1) Cold air machines using air as a medium; (2) compression machines using volatile liquids, such as ammonia, sulphur dioxid, carbon dioxid or other chemicals; (3) vacuum machines using water vapor; and (4) absorption machines where ammonia is used exclusively.

Cold air machines, while practical, are clumsy in construction and are not often used, although lately one or two cold air machines have been developed for the small individual type of refrigerator.

Compression machines using volatile liquids, such as ammonia, sulphur dioxid and carbon dioxid, have proved the most practical of all refrigerating machines with the exception of the absorption type which will be discussed later.



Brine circulating pump mains and water cooling tank.



Motor and compressor of a 15-ton ammonia compression refrigeration system.

The above mentioned chemicals exist in a gaseous state at atmospheric pressure. These gases are compressed into a liquid form by high pressure and cooled while the heat is absorbed by re-evaporation at a reduced pressure and they produce a refrigerating effect by taking up the heat from the body to be cooled.

The vacuum machine operates on a similar principle to the compression machine.

In connection with the ammonia absorption machine, superheated ammonia gas and steam are driven off from a solution of ammonia and water in a generator that is heated by steam coils. By a series of generators, rectifiers, absorbers and coolers the ammonia gas is liquefied and expanded into evaporating coils that produce the refrigerating effect the same as in the compression machine.

Operated by Exhaust Steam

These machines have the advantage of being built to operate by exhaust steam where this is available, so that it is not necessary to use any other power except a small amount of either electricity or steam for operating the pumps.

Of course the brine circulating system is the same in all machines. The different refrigerants are used for one purpose, namely, to cool the brine that circulates through the coils producing the cold that keeps the temperatures down.

The foregoing brief explanation will give some idea as to the types of machines that have been developed.

In connection with the compression machine the two principal gases that have been used are ammonia and carbon dioxid. Each has its advantages and disadvantages.

Ammonia requires less power to operate as it can be run at a lower pressure, but there is always the danger of a leak and the subsequent escape of the fumes through the building. To meet the danger a number of safety devices have been developed that automatically shut off the ammonia in case of a leak or of an explosion. The ammonia is used only at the machine itself as cold brine is circulated throughout the building, thereby confining the danger from fumes to the engine room.

On the other hand, carbon dioxid is harmless and odorless but the latter quality makes it difficult to detect leaks in the plant. The carbon dioxid machine was mainly developed to be used on board ship where the use of ammonia was considered very hazardous. This type is still used to a great extent, although a number of ammonia machines are being used in marine work.

Ammonia is the only gas that can be used in the absorption machine, and this is preferable to the compression type where exhaust steam is available.

Confront Many Problems

In connection with the selection of a refrigerating plant for a hospital, there are a number of questions to be considered. In a single building, such as a fifty-bed hospital with no outbuildings, a small machine can be very economically installed to take care of all refrigerator boxes and mortuary receptacles and to make a small amount of block ice. The average size of a machine for a hospital up to 100 beds, varies from eight to fifteen tons in refrigerating capacity. If the size of the institution increases up to 150 to 200 beds, it would probably be necessary to install a machine of from twenty-five to thirty tons capacity, depending upon the location of boxes and the number of boxes installed.

Refrigerating machines are generally rated for the number of tons of ice that the machine is able to produce in a period of twenty-four hours, and it takes approximately two tons of refrigeration to make one ton of ice.

In regard to deciding upon the size of the refrigerating plant, there are no absolute rules except those that are purely theoretical and do not hold in practice. If a box could be designed where it was not subjected to external temperature, it would be a simple matter to design a machine to take care of this particular size of box. Probably a large storage warehouse comes nearer to being under these conditions than any other form of

refrigeration, due to the fact that some articles are stored from periods of from one month to a year. The boxes, too, are practically sealed up and no outside temperature is allowed to interfere with the cooling effect of the brine.

Capacity and Exposure

On the other hand, where a box is continually opened and closed it is a foregone conclusion that the capacity of the machine will depend entirely upon how frequently the doors are opened in these boxes. In a storage warehouse where the boxes are closed for long periods of time, one ton of refrigeration would probably take care of from 3,000 to 5,000 cubic feet of box capacity. In hospital work it has been customary to figure in the neighborhood of 500 cubic feet for each ton of refrigeration.

The question of opening and closing doors can be materially reduced if the doors of the box are made of two or three thicknesses of glass. Then if the attendant wishes to know what is in the box he can look through the glass instead of opening the door.

This method of construction, while a little more expensive, will save a great deal. In other words, the less frequently the box is opened the cheaper the plant may be operated.

It is, therefore, advisable in a hospital, to have a main storage compartment box for meats, butter, eggs, milk, vegetables and fruits, which need to be opened only once or twice a day and then have smaller day boxes for one or two days supplies located close to the kitchen.

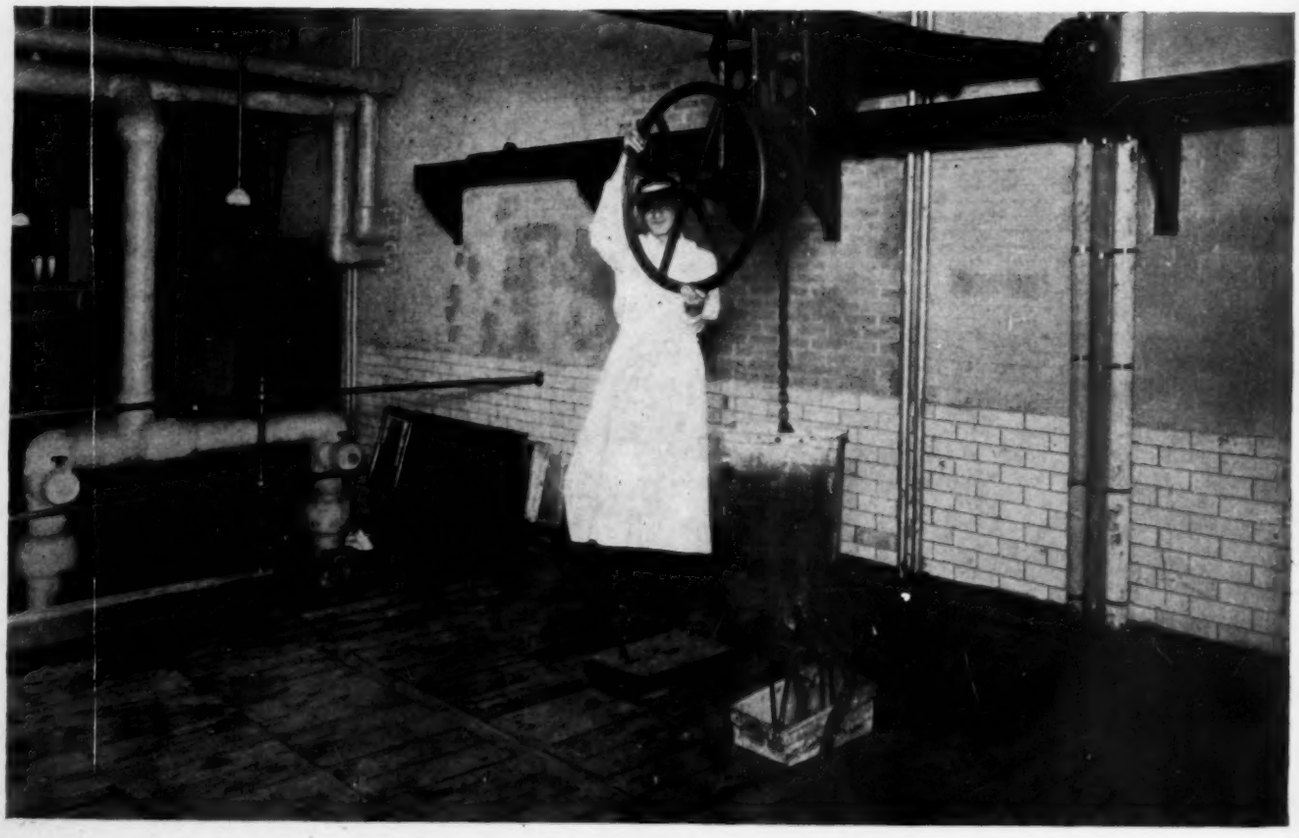
This scheme works out very well in almost any sized hospital that can afford to have a refrigerating plant at all.

The question of the amount of block ice required for twenty-four hours is an important one. This seems to vary in different hospitals. In a small hospital of from 50 to 100 beds, 1,000 lbs. of ice per day is sufficient. For a hospital of from 150 to 200 beds, 2,000 lbs. is ample. It is a good plan to provide next to the block ice tank an ice storage room so that if there is a surplus of ice manufactured it can be kept in this storeroom and preserved.

Central Refrigerating Plant

When it comes to the selection of the type of machine to be used in a hospital building, it is generally preferable to use a central refrigerating plant rather than the small individual machines that have been developed recently. This applies to a hospital of more than fifty beds. Smaller hospitals can probably use to advantage the small individual box for each refrigerator.

In connection with a hospital where a nurses'



Raising ice cakes from the freezing tank of a 5-ton plant.

home has been added it is too expensive to run brine mains from the main building over to the home, and it is generally preferable to put a small individual machine at each box in these disconnected buildings.

It is next to impossible to formulate any hard and fast rules for designing a refrigerating plant, as each case has to be treated individually. This article outlines the general practice.

Power Determines Selection

In larger hospitals the question of the selection of a compression or an absorption machine should be carefully considered. There are several cases that govern the selection. Whether the hospital is developing its own electricity or whether electricity can be purchased at such a price that it would not pay to develop it are points to be given thought to. In this case a compression machine should be used, but where exhaust steam is available from steam engines and steam operated machinery, the installation of an absorption machine should be considered.

Utilize Warm Condenser Water

There is another very important question in connection with the water that will be used for condenser purposes in all refrigerating machinery. It has been customary to throw this water away after it passes through the condenser. With small plants of from one to five tons capacity, it probably does not pay to save the water, but if a plant over this size is installed, there is considerable saving in utilizing this water for domestic purposes. The water that has passed through the condenser does not come in contact with any gases and as it comes out, it is perfectly clean. The average temperature of incoming water sold by water supply companies is about 50° to 54° F., and the temperature of the water as it passes out of the condenser is about 100 degrees. As the refrigerating plants take about one gallon of water per ton of refrigeration it can be seen that considerable water may be utilized for domestic hot water purposes. Water of 100 degrees is too warm to use for "cold water work," but passing it through a feed water-heater to warm it, the initial temperature of from 100° to 160° F. will not take as much steam as if the water entered the heater at its initial temperature of about 54 degrees. A large amount of fuel can be saved during the year by utilizing the water.

Considerable money can be saved by automatic refrigeration. The method used is to have the ammonia compressor connected with an automatic attachment that will work with either an electric motor or a steam engine drive, and arranged for thermostatic control. The thermostat is set in some one of the refrigerator boxes and set for predetermined temperature.

Assuming that the temperature of the box requires about 34 degrees, and the box cools down to 32 degrees, the thermostat automatically shuts off the compressor which does not start again until the temperature rises to 34 degrees. In this way considerable power may be saved by not running the compressor all the time. It is necessary, however, to run the brine pumps continually in order to keep the brine in circulation.

The automatic system is satisfactory but is expensive to install. In an ordinary small refrigerating plant costing from $9,000 to $12,000 the automatic attachment would cost approximately from $400 to $600 extra.

To determine the type and size of machine required it is necessary to know the total number of boxes to be installed in order to arrive at the capacity of the machines. This will also include the amount of block ice that will have to be made during each twenty-four hours. It is essential to know the cost of electric power against the cost of steam power, whether it is advisable to install a compression or an absorption type of machine, and, finally, to consider the question of remote boxes located in outbuildings.

A PLEA FOR ADEQUATE COMPENSATION INSURANCE

In a recent address S. G. Davidson, superintendent, Butterworth Hospital, Grand Rapids, Mich., made a plea for adequate compensation insurance to workmen. He said:

"We have in practically all the states a workmen's compensation or liability insurance to be paid to the working man for injuries received in the course of his employment and this compensation insurance gives to the worker a sum per week during the time he is laid up, a sum for his doctor and a sum for his hospital care.

"We are not concerned with the first two but we are concerned with the compensation to be provided for the hospital care. It is generally paid by the insurance companies which take upon themselves the insuring of the employees of corporations. I have taken the liberty of bringing this matter to your attention because in Grand Rapids we have charged corporations (and this term comprises employers of labor, insurance companies, the city and county and the United States Government) $4 per day, plus extras, for the care of these patients, and when our cost increased we raised this rate to $4.50 per day, plus extras. Extras include operating room, x-ray, laboratory, and perhaps unusual or expensive medicines. Our cost per day averages for the three hospitals between $5.50 and $6.

We did this on the basis that these corporations were well able to pay the cost and that it was utterly against public, philanthropic or social policy for us to ask contributions from the people of Grand Rapids to meet the deficits of our hospitals, when a part of that deficit was occasioned by inadequate charges made to the corporations.

PLANNING AND ORGANIZING THE DIETARY DEPARTMENT

By Lulu G. Graves, Consultant, New York, and Carl A. Erikson, Architect, Richard E. Schmidt, Garden & Martin, Chicago

THAT epitome of luxury—breakfast in bed—represents to the ever-present Puritan among us the heights of immorality and sloth; to most of us it conjures up the depths of misery and illness. But breakfast, or any other meal, in bed may have all the delights of the daintiest Epicurean repast. It is certainly free from the imputations of either immorality or slothfulness when partaken of in the hospital. And in the hospital, the convalescent always, and all patients, at times, should look forward to good food attractively served. The hospital that uniformly sets a "good table" is producing good will of great value. Equally obvious and equally illusive are the quick, certain returns in hastening the recovery of the patient and his restoration to breakfast with both feet under the table.

But what constitutes good food service in the hospital or elsewhere? Good materials, properly prepared, attractively served, in pleasant surroundings, with good company and to a hungry person. If one of these requisites is lacking, by so much more must the others be increased. As the truly hungry patient is a *rara avis* the other elements must be correspondingly emphasized.

It Pays to "Feast the Eyes"

The foundation stone is the quality of materials, but this needs no emphasis here. Pleasant environment can be supplied to a limited degree. The difficulties in ward service are numerous but not wholly insurmountable. "Feasting the eyes" has become a rather trite expression but nevertheless it emphasizes an important psychological, or perhaps physiological, fact. Some hospitals recognize this by trays with attractive private room service, and napery, a flower perhaps. The kind of tray served in many wards would indicate that the patients were all ophthalmic cases suffering from total blindness.

But is the fundamental basis of tray service sound—everything from "soup to nuts" on one tray? Merely to state the question is to answer it. It is obviously possible to serve the hospital patient in courses. It should unquestionably be the method in high grade private service and more especially so if the private nurse is in attendance. How much further course service could be profitably extended had best be left to trial.

Another important element is the odor or savouriness of the food. There is generally nothing quite so distasteful to the patient as cooking odors. On the other hand, there is nothing quite so stimulating to the appetite as the aroma of a well baked ham or a turkey. And yet the hospital trays are usually as barren of aroma as the beautiful Canterbury Bells, the delight of many a garden. How can this valuable element be restored to the food, or rather how can it be preserved in its journey to the patient's bedside? The answer has not yet been forthcoming, but it will be.

Speed Up the Service

Then there are a number of rather common articles of diet that completely lose their appetizing qualities by delay in service. One of these is the despair of every dietitian and hospital superintendent, the common toast. That the best of hotels and restaurants do little more than hospitals in this respect better emphasizes the difficulties, but is no excuse. And who ever heard of good waffles in the hospital; this dish just isn't on the menu!

These are a few of the unsolved problems of dietary departments. They will serve as the introduction to present-day practices and the solutions suggested for other problems of the department. It is well here to differentiate rather clearly between the two functions of the dietary department, production and distribution. In production there is much difference of opinion as to detail but little as to principle; in distribution there is neither agreement in principle nor in detail.

From the emphasis laid on food distribution in recent years one might easily be led to believe that a proper method of distribution is a substitute for skill and head work in the kitchen, for good materials and for cooperation by the entire personnel in the attractive, speedy and efficient distribution. While there has been, perhaps, a lack of emphasis on the importance of the personnel in preparation and distribution of the food yet it is obvious that distribution is of equal importance with the buying of food and its preparation. The magic of an attractive tray, speedily and pleasantly served, often offsets poor quality and inadequate preparation. On the other hand, slow distribution and consequent cold

food will damn the best of food and preparation.

The successful solution of the food problem in the hospital is essentially one of teamwork—cooperation in buying and preparation, and gracious and speedy distribution. No change of method will overcome this prime necessity. Faulty arrangement and equipment may handicap team work. But the most perfect plan, the ideal arrangement and the best of equipment will not offset lack of team work.

In planning the kitchen one must never forget that it is a factory for the conversion of raw food into the finished product. To be efficient this food factory should be so arranged that the continuous flow of raw material from reception to distribution is never interrupted. There should be no retracing steps or crossing of the flow of material. The fabricating machinery should be of such amount, so fashioned and so placed that the minimum of steps and labor is necessary. Too large a kitchen is just as bad as one that is too small. And, of course, the probable personnel is a most important factor. In a community, for instance, where it is obvious that the cook will be a negro mammy it is unnecessary to provide for the immediate installation of numerous steam cooking utensils that she will not use or understand.

The statement of the basic principle of kitchen planning makes it seem simple enough, yet its application to a specific problem is extremely difficult at times.

"Daily Supply" Refrigerators Desirable

Beginning with the receipt of raw materials, numerous questions arise. The best practice in the larger hospitals is decidedly in favor of placing all stores, including perishable kitchen stores, in the control of the central storekeeper. In the smaller hospitals, or those where no full time storeroom clerk is employed, the perishable and semi-perishable supplies (butter, eggs, fruits, vegetables and meats) are often delivered to the care of the person in charge of the kitchen department for control and distribution. Under such conditions refrigerators of proper size must be provided near the kitchen. In connection with this room it is also necessary to provide storage space for canned goods and similar material sufficient to last a short time. The main supply should always be in the main storerooms and requisitioned out weekly or oftener as may be necessary. "Daily supply" refrigerators in all kitchens are a desirable feature even where storage refrigerators are close at hand. Where they are at a distance the former are a necessity.

If all supplies are issued daily to the kitchen little storage space need be provided in the kitchen department, but some space must always be provided for the numerous articles needed about the kitchen. Some space is needed for "left overs." Whether this be in pantries, cabinets, or in the equipment can be determined only after a study of each case.

But the "little acorns from which the mighty oaks do grow" are the range and kitchen sink. We can all bear witness to the effectiveness of this simple domestic equipment in the hands of masters.

So in the smaller hospitals all of the fabrication of the food takes place in the kitchen and with equipment not much more elaborate; in the very large hospitals it is minutely subdivided, sometimes in one room as in a hotel, sometimes in a number of rooms, whose number, size and kind follow no precise practice.

How Meat Is Handled

The minimum is the domestic range and the kitchen sink. No attempt will be made to describe the maximum, but the description of the subdivisions of a larger hospital will also serve to describe some of the processes that take place in the range and kitchen sink of the home. The processes of preparation of the food are almost as numerous as the number of articles that enter into the menu. Meats, for instance, may be purchased ready for the cook or they may be on the hoof, thus requiring skillful butchering and dressing before the cook can use them, or the meat may be somewhere in between these two extremes. In the first case the meats are usually purchased daily and the route is direct from the receiving room to the daily supply refrigerators. In most hospitals the meats, though received daily, are first sent to the wholesale refrigerators in the storage department. Adjoining the meat refrigerator, it is usually necessary to provide a butcher shop, the equipment and size of which are dependent upon the size and policies of the hospital. Fish and sea food receive but little consideration in the hospital except on Friday. A special fish box is desirable even in the small hospital; in the large hospital a fish refrigerator and a fish preparation room should be considered.

There is perhaps no place in the entire dietary where greater care must be exercised than with milk. The facilities to be provided will depend on the source of supply and its intended use in the hospital. If pasteurization is necessary special facilities must be provided. Milk formulas must be prepared with the greatest care, with meticulous cleanliness by experts, not by kitchen help.

Whether it should have a kitchen of its own and, if so, its location, is an individual problem. But the bulk of the milk must be moved quickly from its refrigerator to the consumer whether it is the bakery, the kitchen, the patient or the personnel. The method of doing this will depend on the form in which it is received, that is, whether in cans or in bottles. Each method requires slightly different facilities. Whether or not the hospital with but a few cases of modified milk formulas should have those prepared in this kitchen or in a kitchen adjacent to the children's ward is subject to a variety of opinions among superintendents, dietitians and pediatricians. It is obvious that where large quantities are involved, or where pasteurization of all of the milk for the hospital is necessary that a special room must be provided.

Butter and eggs enter into practically every phase of the dietary department but do not present, except to a limited degree, those problems that are inherent in handling milk and cream.

The routing of fresh fruits and vegetables is rather different from that of either the dairy or meat products. All of them must be washed, some are to be cooked and some are to be served raw. Obviously, the greater part of this can best be done in a place where trained personnel is present and the proper machinery installed.

Dry groceries, flour, sugar and the like may follow a simpler routing, going direct from the storerooms to the cook and baker or dietitian. Canned goods, usually grouped with the dry groceries, follow the same path.

The size of these storage rooms will be determined by the location of the hospital with reference to its source of supplies and its policies as to purchase.

Bakery Practices Differ

The size and location of the bakery will likewise depend upon hospital policies. Many hospitals have found it unwise to do their own bread baking. Puddings and pastries are usually prepared in the institution. Sometimes fancy rolls are and, of course, hot biscuits. While the bakery should be in the dietary department, its relationship to food distribution is not so close as that of salads or of the metabolism kitchen. If the bakery cannot be readily reached in the march of the food it is obvious that readily accessible shelf space should be provided in the main kitchen.

The preparation and distribution of salads has become increasingly important with the humanizing of the hospital diet. In some hospitals the entire cleansing and preparation is done in the floor pantries. In others cleansing and peeling are done in the main preparation room of the hospital and the proper number of portions sent to each pantry. In some the entire salad is set up in the main dietary department; sometimes in the main kitchen; sometimes in diet kitchens, more correctly called salad kitchens. Sound arguments can be advanced for each method. In some hospitals pupil nurses are used in the preparation of salads. If the service is then to be centralized it is obviously desirable to assign a definite space in the main kitchen or preferably a separate room where more satisfactory conditions can be maintained than in the larger kitchen. The location of the separate room with reference to distribution, storerooms, refrigerators, and such equipment must be carefully considered. The equipment will depend upon the methods, size and personnel.

Is Nurses' Kitchen Necessary?

Scientific diets, weighed, salt free, are becoming of increasing importance as the hospital changes from a surgical into a medical and diagnostic institute. Obviously, the relationship between this department and the main dietary must be close, yet it must be entirely distinct. The work will usually be done by pupil nurses or dietitians or both. As there is necessarily much weighing and careful preparation the kitchen more closely resembles a laboratory than the hurly burly of the usual hospital kitchen.

In many large hospitals and in some smaller ones more than one kitchen is provided. Most frequently this is due to helter skelter growth. Duplication of personnel and equipment is wasteful both of materials and labor and invariably leads to a troublesome lack of uniformity and difficulties of control and supervision. In many hospitals, usually of over 200 beds, it has been found desirable to provide separate kitchens for nurses and, less frequently, for help. Where private patient pavilions of any large capacity have been erected the usual practice is to provide a separate kitchen. The justification for this decentralization is clear. High grade private patient service is quite a different matter from the usual ward service. It requires a different personnel and superior materials. The nurses' kitchen may be economically justifiable if the number of nurses is large. However, the more cogent reasons for its existence are:

1. That the nurses' dining rooms are at a distance from the hospital with difficult problems of transport.
2. That usually a pantry with the greater part of the kitchen equipment and personnel is needed for service or for "short order" purposes.
3. It is felt that better food service can be rendered to both patients and nurses if the kitchens are specialized.
4. And last, but not least, because hospitals (even newer ones) have grown so much faster than their progenitors expected the main hospital kitchen is too small.

The same general line of reasoning applies to the help's kitchen but, perhaps, not quite so cogently.

If these or other subsidiary kitchens are to be established the planning of the main dietary department is affected in more ways than merely in size. Of course, one bakery will serve the entire plant no matter what its size, but its location may be affected. These subsidiary kitchens may vary all the way from completely equipped kitchens down to little more than a small pantry. Hospital policy in regard to cleaning and paring of vegetables and fruits will affect the size of the main, as well as, subsidiary kitchens. Many materials that may be readily transported without loss of flavor, such as roasts or soups may be prepared for all kitchens in the central one and transported to the subsidiary ones. Decision in this respect will affect the size, equipment, and personnel of the entire department.

Having settled these questions, the way is now cleared for a consideration of the main kitchen. But its size and management are vitally affected by the method of distribution. The broad guiding principle in planning the kitchen is the same no matter what method of distribution is determined upon. It is well to remember that the preparation reaches its climax at the steam kettles, the range, the salad table or the bakery. Up to that point every thought must be given to its easy preparation. Beyond that point, the same thought must be given to its distribution.

Space does not permit of the detailed study of the equipment and arrangement of the main kitchen or its auxiliaries.

In some methods of food distribution, the differences between the preparation and the distribution are quite marked, extending almost to the entire personnel. In others the personnel may be largely the same. In the first case the line of demarcation is as marked as in any good hotel kitchen; in other methods, the line tends to vanish.

Floor Versus Central Service

Basically there are two methods of food distribution; one that may be called the floor service, the other, central service. The differentiation as to type depends on the place at which the patient's tray is set. In floor service, trays are set up on the patients' floors; in the central service system trays are set in the main kitchen or nearby.

The varieties of each are numerous but the commoner forms are these:

Floor Service

A1. Food in bulk to floor pantry steam table and refrigerator
Trays set here

A2. Food in heated or insulated carts to floor pantry (where trays are set). Cold food in separate compartment to refrigerators.

A3. Food transported as in A2 but to patient's bedside. Trays set here or in pantry but food is served at bedside.

Central Service

B1. Trays set completely in or near main kitchen and transported to floor pantries from which they are carried to patients.

B2. Similar to B1 except that cart is wheeled directly to patient's bedside or room.

B3. Similar to B1 except that dumb-waiters carry the food from below; then trays are carried to patients.

Semi-Central Service

C1. Trays set in floor pantry where cold food is put on. Hot food put on plates in main kitchen transported to floor (usually in heated cart) where hot plate is added to the tray to be carried to patient.

It is obvious that central service requiring, as it does, the setting of trays in the main kitchen for practically the entire patient capacity will require much space if only to provide for the setting of the numerous trays. It will obviously require room for the convenient movement of the help needed, for all of the work is concentrated in the main dietary department.

Floor service requires less space in the main dietary department but needs larger floor pantries than the central service. There are some advocates of central service who maintain that floor pantries are unnecessary but there are few who can agree with them. The question is involved with problems in regard to nourishments and refreshments: whether they shall be prepared on the floor or centralized; whether the nurse (private or pupil) shall have the opportunity to do anything with the patients' food or refreshment. As this has been the subject of much propaganda aimed at the extirpation of the defenseless floor pantry and conducted with all the ardor of a Turk on the trail of an Armenian, the reader is referred to the abundant material on the subject.

Little consideration has been given to the methods of transport, whether by open cart, insulated cart, or heated cart in its numerous forms. Nor does space permit of a discussion of the relative merits of dumb-waiter or elevator.

A plea must be entered here for the proper placing of the dietary department. The basement should be avoided unless a sufficient number of windows can be secured. If the basement ceiling must be covered with a network of pipes, as is usually the case, a determined effort should be made either to build a sub-basement for these pipes or else to raise the kitchen above the pipe gallery level. A kitchen full of pipes can never be clean for long, and one buried in the bowels of the earth is not conducive to the health, welfare

and happiness of those who have to spend the greater part of their days in it. And where stands the hospital that does not practice its own preaching?

In a department having so many and such diversified features as have been outlined, intelligence and experience are required to correlate the various activities and keep them functioning in a way that will give a maximum of service with a minimum of expense to the hospital. At the same time the department must fit into the plan of the institution and do its share in the team work that has been emphasized above as essential to successful operation.

Personnel Must Cooperate

This department, in common with all others, will not run by its own momentum and give returns to the hospital commensurate with its cost; neither will it give satisfactory returns, if the mechanism is constantly interfered with by outside agencies.

Cooperation should exist within the department whether the responsibility is centered in one person or in several. If the buying is done by one person, the planning by a second, the cooking by a third, the most conscientious effort on the part of one or two of these individuals may be completely nullified by another unless each knows what the others are trying to do, and extravagance and waste are bound to result. If all are equally painstaking and conscientious, there will be no question of cooperation, for if the responsibility is centered in one person, unity of interest is pretty certain to follow.

A unified department is necessary for authority as well as for efficient work. Since the dietary department is the one part of a hospital with which every individual within its walls has contact, more or less, and because there are necessarily many and varied operations in process during the greater part of every day, it should be conducted in an effectual way. In a well ordered kitchen there is little noise, confusion or uncleanliness, but this condition implies a systematic and businesslike management.

What Work of Department Includes

Whether the hospital be large or small, a well planned system is necessary in order to give good service, including prompt service of meals, and in order to follow a system, there must be suitable regulations. These regulations should be observed just as strictly as are the regulations in the operating room, the linen room or elsewhere in the hospital. Unfortunately, this is seldom the case. On the other hand, every good system is flexible enough to permit of waiving rules and regulations, when necessary or advisable.

When this condition is found, there will also be found team work.

In large hospitals, and to a lesser extent in small hospitals, the work of the dietary department includes:

1. Feeding of the hospital personnel, including patients, doctors, nurses and employees.
2. Feeding patients or members of the hospital staff who require especially prescribed diets.
3. Teaching: (a) Courses of dietetics to nurses; (b) dietotherapy to patients.
4. Clinical and research work.

Each of these phases of the work is important and each calls for supervision by a person of experience and training. In the large hospital, a corps of trained workers is necessary, while in the small hospital one experienced person with a few intelligent assistants may meet the requirements.

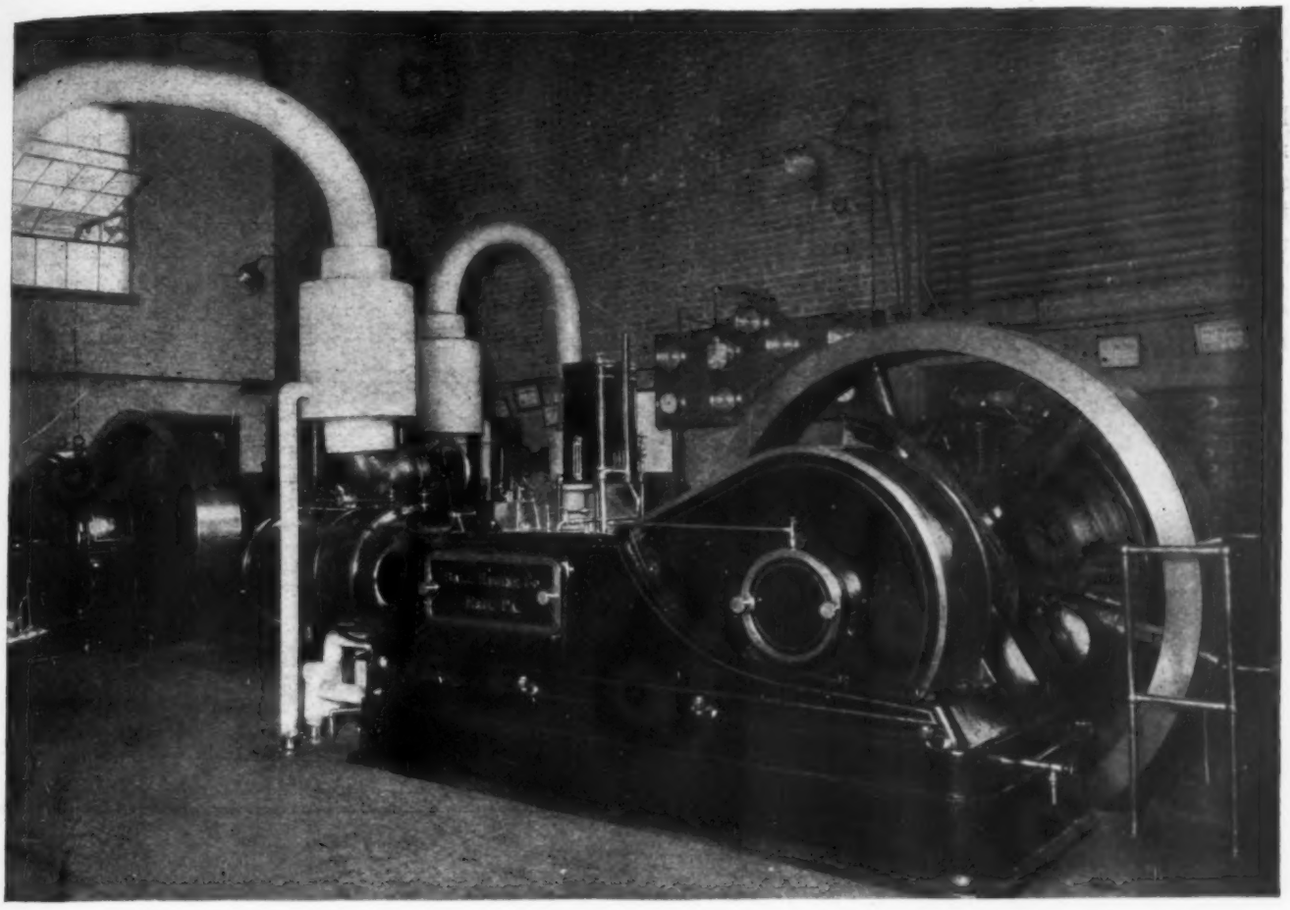
Shall a Man or a Woman Be in Charge?

The question as to whether the one in authority should be a man or a woman remains unanswered. No one person, either man or woman, has yet been found qualified to carry all of these responsibilities. Up to date the question almost universally relates to the phase of the work classified as 1, since subdivisions 2 and 3 are practically always carried by women, and 4 is in the domain of the physician with the dietitian assisting him.

The management of the main kitchen is one of the few personnel problems at the present time in which the subject of sex really need not enter. We are told that usually a man will buy better than a woman, and this may be true, but there are numerous women who buy advantageously in hotels, restaurants and a few hospitals.

Again we are told that a woman will give more attention to details than a man, and it is conceded by all that if the little things are looked after, the big ones will not be difficult. She may give more attention to details, but a man, as a general rule, will be more exacting with his kitchen staff and demand that they look after details.

So we might continue to discuss the pros and cons of this question, but the actual fact remains that the expert manager of a hospital dietary department is a rare specimen, either male or female, and the fault lies largely with the hospital authorities. When they make it worth while for competent men and women to supervise their kitchens and are willing to accord them the same opportunities that are afforded them from other sources, then hospitals will have well organized dietary departments.



Engine and electric generator in 500-bed hospital.

THE LAYOUT AND MECHANICAL ENGINEERING OF THE MODERN HOSPITAL

By Frank D. Chase, C.E.
Chicago

WE HAVE all seen pictures of the pigmy locomotive of sixty or seventy years ago standing beside the complex mechanical giant, the modern locomotive. The average person stopping at a modern hotel realizes, without knowing or thinking definitely, that the structure housing him, and furnishing him endless luxuries and conveniences is a complex machine as well as a beautiful building. Those who have to do with the physical structure, that is, the building and equipment of the modern hospital recognize the fact that it is becoming a complex machine, just as the modern locomotive or hotel.

This is true of most of the physical results of skill and ingenuity in providing for modern human needs.

The designing of a hospital may be divided into these three steps: layout—departmental; structural and mechanical design; architectural design.

This article discusses the relationship of the first two of these subjects and outlines in brief detail some of the fundamentals of the structural and mechanical design of the modern hospital.

The layout, which takes into account the occupancy, includes the proper location, size, and interrelationship of all departments and the kind, size, quantity and location of all equipment. This is the problem of the architect, the engineer, the consultant, the superintendent, and the representatives of the staff and of the board of directors. Prior to the development of the layout, but related to it, however, comes the consideration of location and size of site. This is dependent upon the building requirements and deserving of intelligent analysis by all of the above interested individuals.

The type or kind of occupancy is determined by the professional activities of the staff or the special and specific needs or uses for which the hospital is built. The extent of the facilities or the

capacity of the hospital, present and future, is similarly established.

These preliminary steps seem so simple and logical, that too often a careful analysis is not made of them. Too often a board of directors selects a site without subjecting it to an analysis to determine its suitability. Provision for the future is the consideration most often overlooked. This single requirement calls for a careful study of the plans, policies, and financial strength of the hospital and the needs of a growing community.

For successful action the committee representing the various interests, above enumerated, should have one individual, perhaps called the chairman of the building committee, vested with absolute authority to act and decide upon all questions, after obtaining proper approval and sanction from the committee.

With these preliminary questions settled, the first step, the making of the layout, may be considered. No two hospitals are alike in their requirements, hence no two may be laid out in similar detail. There is an unfortunate tendency, too prevalent, on the part of various members of committees to inspect other hospitals and duplicate, without realization of the fact that the slightest variation in conditions may change radically one department and, by virtue of close interrela-

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The following list is taken from the mechanical specifications for the Chicago Memorial Hospital, now being built in Chicago.

Power plant and steam piping system:
- High pressure boilers
- Breeching
- Stack
- Stokers
- Stoker fan
- Coal handling
- Ash handling
- Feed water heater
- Boiler feed pumps and regulator
- Vacuum pumps and regulator
- Receiving tank and vent
- High pressure steam piping and traps
- Insulation
- Heating system, piping and reducing valve
- Radiators, valves and traps
- Steam connections to coils
- High pressure steam piping to laundry, kitchen and sterilizing equipment
- Boiler, feed and vacuum pump foundations and soundproofing of same
- Blow off basin and vent
- Blow off piping and valves
- Expansion joints
- Draft gauges
- Steam flow meter
- CO_2 recorder
- Feed water meter
- Recording temperature and pressure gauges

Electric light and power:
- Transformer and vault
- Service switches
- Meters
- Switchboard
- Lighting feeder system and cabinets
- Power feeder system and cabinets
- Emergency lighting panel
- Exit, fire escape and stair lighting
- Night lights
- General lighting outlets, switches and base plugs
- Motor connections
- Motor controllers
- Feeders for x-ray equipment
- Electric fixtures
- Exterior lighting outlets for driveways, etc.
- Operating room lighting
- Electric fan outlets.

Telephones and miscellaneous wiring system:
- Telephone distributing panel
- Telephone private branch exchange
- Telephone terminal boxes
- Public telephone booths
- Private room telephone outlets
- Nurses' call system
- Doctors' paging system
- Clock system with master clock
- Fire alarm system
- Electro-cardiograph system with distributing cabinet, relay and battery cabinet, galvanometer.

Plumbing:
- Water service
- Water meters
- Surge tank
- House pumps
- House tanks
- Cold water piping system
- Hot water piping system
- Hot water heaters
- Hot water temperature regulators
- Drinking water piping
- Drinking water circulating pump
- Filter
- Water softener
- Salt storage and tank
- Fire pump
- Fire pump cushion tank
- Fire pump control panel
- Air compressor and receiver
- Sewer system
- Sewage ejector
- Floor drains
- Plumbing fixtures
- Water connections for kitchen
- Water connections for laundry
- Tank insulation
- Piping
- House tank float valves
- House tank high water alarm
- Pump foundations and soundproofing of same
- Kitchen grease traps
- Acid proof laboratory piping and dilution tank
- Yard drainage
- Downspouts
- Roof sumps
- Gravel basins
- Gas service and meter
- Gas piping
- Drinking water dechlorinating system
- Standpipes (fire protection)
- Siamese connections
- Hose and hose reels

Ventilation:
- Fresh air intake
- Air filters
- Ventilating fans
- Fan motors and controllers
- Fan and motor foundations and soundproofing of same
- Heating coils
- By-pass dampers
- Thermostatic temperature control system
- Compressed air piping for thermostatic control
- Exhaust and air supply duct systems
- Volume dampers
- Grilles

Refrigeration:
- CO_2 compressor
- Condenser
- Brine storage tank and freezing tank
- Ice crusher
- Brine pumps
- Brine piping
- Kitchen refrigerators
- Diet kitchen refrigerators
- Morgue refrigeration
- Flower room
- Tank insulation
- Brine piping insulation
- Refrigerators for crushed ice

Elevators:
- Elevator machines and control
- Soundproofing of elevator machines
- Elevator cabs
- Motor generators
- Elevator signal system
- Elevator doors and interlocks

Sterilizing and miscellaneous equipment:
- Instrument sterilizers
- Dressing sterilizers
- Utensil sterilizers
- Solution cabinets
- Blanket warmers
- Bedpan washers
- Drying closets
- Clinic sinks
- Surgeons' sinks
- Specimen cabinets
- Medicine cabinets
- Diet kitchen gas range

Laundry equipment:
- Washers
- Extractors
- Tumbler
- Ironer
- Presses
- Electric control panel

Kitchen equipment:
- Range and hood
- Stock pots
- Vegetable steamer
- Dishwasher
- Sinks
- Bake ovens
- Proofing box
- Cook's table
- Vegetable peeler
- Silver burnisher
- Tables, cupboards, etc.
- Steam table
- Coffee urns
- Meat chopper
- Food carts
- Plate warmer

Miscellaneous:
- X-ray equipment
- Dark room equipment
- Laboratory equipment
- Garbage incinerator
- Garbage can washer

tionships, affect several or all other departments.

Each of the members of the committee contributes the data pertaining to his field, to enable the architect, the engineer and the consultant to develop the layout that will adequately house each department, supply its needs and tie all of the departments together to the end that the hospital will function smoothly, economically and efficiently.

A proper study of the layout may, and should, take more time than is needed to make the plans for the building. Too often the entire matter of layout is left to one individual, and no one member of the committee is, as a rule, competent to develop such a layout. The problems involved in this layout are those of management, medicine, surgery, mechanics, civil, structural, mechanical and electrical engineering and architecture. Surely no one person should be responsible for all of these.

Establish Minimum Requirements

The layout establishes the maximum and minimum areas needed, particularly the latter, so that no space or floor area is wasted as the result of uncertainties. The use of the minimum space needed for all departments means minimum of wasted effort in operation. The layout establishes the structural considerations necessary to the design of the building. Last, but by no means the least in importance, the determination of minimum requirements enables the architect to produce a building designed, built, and equipped at minimum cost. Minimum size and cost in turn mean minimum fixed charges and, with the proper layout and operation, minimum operating expenses. These charges and expenses, if at a practical minimum, mean that the hospital should be self-supporting, or nearly so.

The second step in hospital building is the designing of the plant (the word building is hardly comprehensive enough) in its structural and mechanical features. The structure may be of wood frame, with plaster, brick or stone exterior, of steel frame, or of concrete with these same kinds of enclosing walls. Fortunately, building ordinances are making it more and more difficult to construct a hospital of wood, as it is little less than criminal to house the helpless in a structure that can become a mass of flames in too short a time to remove the occupants.

There are, of course, many types of wood construction varying from the light stud and joist construction, which includes often the stair walls, making them death traps, to a heavier type using brick for fire and stair walls. The former is without the slightest justification.

The man who today assumes the responsibility for the use of wood or timber in hospital construction, or who uses or permits other than fireproof building construction for a hospital (for more than one or possibly, in rare instances, two story buildings) is either a knave or a fool, and as either should have no connection with a hospital.

A steel frame with hollow tile floor construction has a definite advantage over concrete, in permitting a less expensive and more flexible placement of the many kinds of pipe, conduit, etc., which go into the building before its completion and sometimes after its completion.

In many localities concrete costs less than steel, and is satisfactory, provided that it is properly designed and placed.

A building committee should always know that the architect is giving expert engineering as well as architectural service in connection with the design, and continuous, not intermittent, engineering inspection of the construction, of foundations, steel, concrete and of the entire structure.

Except for making adequate provision for the mechanical features, the structural design of a hospital offers no problem of interest or difficulty not found in any building of similar size and cost. The mechanical layout is the really difficult and complex part of the whole job and the success or failure of the hospital, from an operating standpoint, hinges, ofttimes, on the quality of the job of mechanical engineering.

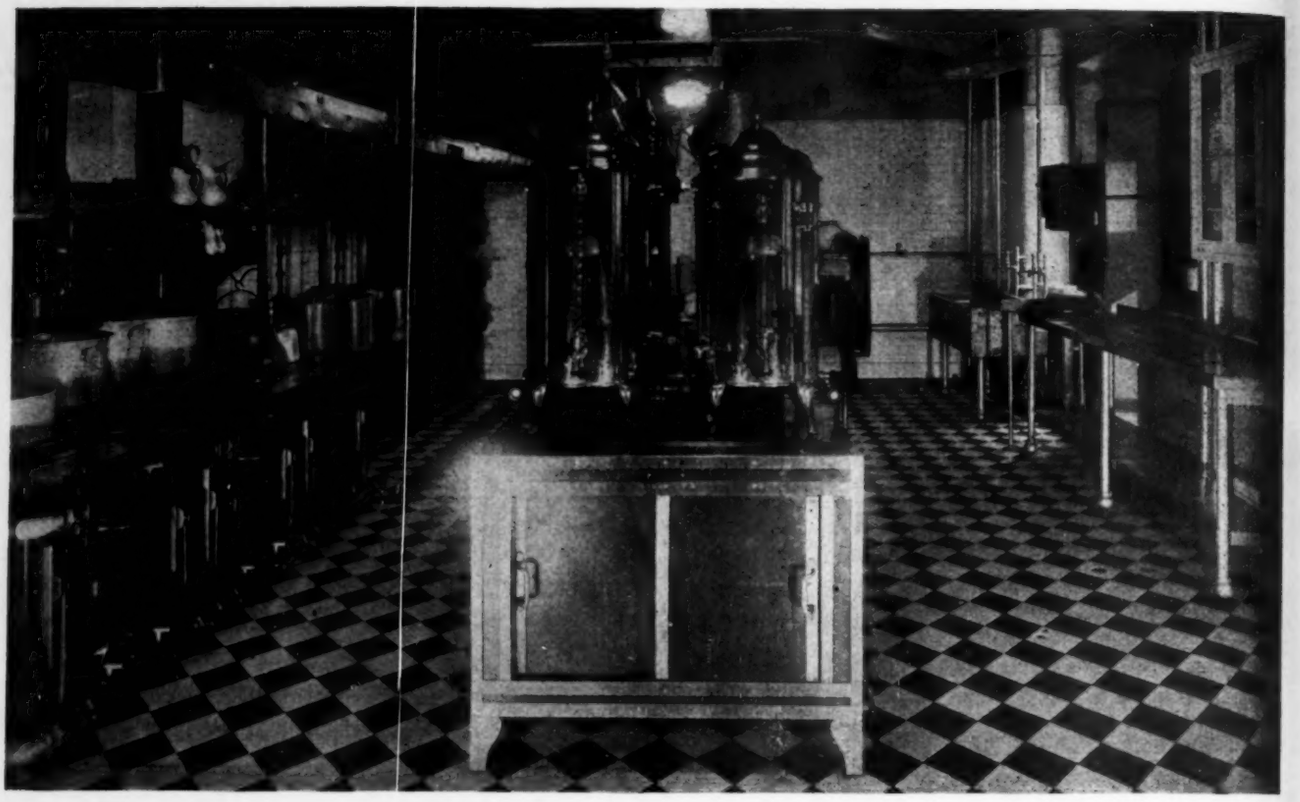
What Mechanical Equipment Comprises

An effective way of realizing the extent and complexity of these mechanical features is to list the varieties, or branches of the work and itemize under each heading only the more important details.

As the above list indicates, the mechanical equipment for a modern hospital is complex and involves more different kinds of piping and electric and other services than almost any other type of building. The following brief comments on the foregoing list may be helpful.

A hospital must be provided with high pressure boilers to furnish high pressure steam for the kitchen, laundry and sterilizing equipment service. For the laundry a pressure of 100 pounds is required. For the kitchen and sterilizing equipment the pressure should be fifty pounds. The heating system is supplied with low pressure steam from a pressure reducing valve or from exhaust steam, or both.

Exhaust steam is used for heating the building, but under ordinary conditions, the amount of exhaust steam available is not sufficient alone for



Conveniently arranged equipment for 200-bed hospital.

the heating, and the difference has to be made up by means of high pressure steam passed through a reducing valve. The exhaust steam is obtained from such steam driven units as the boiler feed pump, house pumps, vacuum pumps, and possibly a stoker fan engine. In a plant, where electric power is generated, additional exhaust steam is available from the engines. On account of the cheap electric power that can be obtained in most cities, and the cost of a generating plant, electric power and electric light can most cheaply be purchased from the public service company in the majority of installations.

The returns from the heating system are generally handled by a vacuum pump, that maintains a vacuum of approximately ten inches on the heating returns. The condensation is pumped back into the feed water heater, and from thence through the boiler feed pumps to the boiler.

The high pressure steam returns consist of a separate system of piping, each piece of apparatus requiring steam being supplied with a separate trap, or the entire system may discharge through one or more large traps in the basement, the condensation being returned to the feed water heater.

Auxiliary boiler equipment has to be provided, including the boiler feed pumps and feed water heater. In any boiler plant it is advisable to have recording instruments in order to obtain information as to the efficiency of plant operation. This involves such equipment as draft gauges, CO_2 recorders, recording temperature and pressure gauges, feed water meter.

Where the design of the building is such that coal bunkers can be installed, advantage should be taken of this method of handling coal, which permits the fuel to gravitate directly into the stoker hoppers, with a consequent saving in labor.

The disposal of ashes can be accomplished in several different ways depending upon the size of the plant and the cost of the installation. Ashes may be removed by steam jet conveyor, bucket elevator, electric or hand operated can hoist, where the boiler room is below grade level.

When any considerable amount of coal has to be handled, automatic stokers form an essential part of the boiler equipment. Stokers are of a variety of kinds, some operating with natural draft and some under forced draft. There is a saving in fuel by the use of automatic stokers on account of the closer regulation of fuel and air supply.

If possible, the power plant and laundry should be located in a separate building. By isolating the power plant from the hospital building, pumps and other apparatus are removed from any possibility of causing objectionable noises and vibrations in the main building. Where the property does not permit of this arrangement and

the power plant has to be located in the basement or sub-basement, precautions must be taken to prevent the transmission of objectionable noises. To accomplish this end, motors and equipment must be mounted on cork and wood bases to absorb the vibrations of the apparatus.

Unless an isolated electric generating plant is a part of the hospital equipment, the source of light and power is taken from the transformers of the service company. From the transformers the service is run to the switchboard, and thence to the various light and power panels.

Power driven apparatus throughout the hospital is served by direct connected motors in most instances, except a few steam driven pumps referred to above. The largest motor driven units are the fire pump, the elevator machines, the ventilating fans and the compressor for the refrigerating system, the latter generally being belt driven. In addition to these motors there are a number of smaller motors required for the laundry and kitchen. The fire pump is supplied with an independent service.

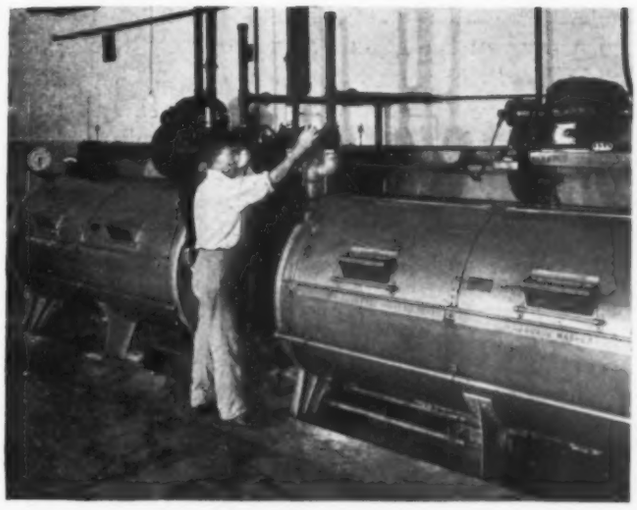
Planning Operating Room Lights

Electric lighting for a hospital differs only in a few instances from that of other buildings. Special attention must, however, be given to operating room lighting, which must be fairly intense, without any resultant glare. This is accomplished in different ways, either by exposed fixtures of special design, or by lamps concealed above a suspended glass ceiling. Only wiring in conduit should be permitted.

The plumbing system is rather extensive. Pressure for the water supply is generally obtained from a roof tank or a pressure tank in the power plant, water being forced to the tanks by means of the house pumps, in case the city pressure is not sufficient to reach the upper floors. Where the water is hard, it is desirable to install a water softening system, in some instances, all the water being filtered and softened except that for drinking purposes.

Drinking water is cooled by means of the brine coils of the refrigerating system, the cold water being circulated by means of a centrifugal pump. The drinking water piping is well insulated to prevent absorption of heat.

The design of the drainage system is dependent upon local conditions. Where fixtures or connections are located below sewer level, a sewage ejector must be provided to handle this portion of the system, gravity being used for fixtures located at higher levels. Drainage from the laboratory, in some cases, must be taken care of by means of acid-proof piping.



The engineer keeps the laundry equipment in proper working order.

Fire protection is provided for by means of a fire pump connected to the standpipe risers and hose reels.

The hot water system is supplied by hot water heaters generally heated by steam coils. The hot water for the kitchen and laundry is sometimes furnished from a separate heater.

Aside from the plumbing fixtures, there are a large number of water and drain connections to be taken care of in the kitchen, laundry, diet kitchens, laboratories, utility rooms and sterilizing rooms. The drains from the kitchen are passed through a water cooled grease trap.

The ventilating system consists of several units including a general fresh air supply, general, kitchen and toilet exhaust. The supply and exhaust systems may consist of several fans, depending upon the size of the installation. Furthermore, the systems may be further subdivided, in some cases, in order to have a more flexible arrangement for controlling the ventilation in various portions of the building. For example, the laundry may have its own ventilating units and, in some hospitals, separate fans are provided for the exhaust from the operating rooms.

The fresh air is cleaned by means of air filters or an air washer, and passes through the fans to the supply system. The number of air changes per hour is governed in many cities by local ordinances. In general, fresh air is supplied to the kitchen, dining rooms, laundry, and to all rooms without window ventilation.

The general exhaust system removes the air from the same rooms to which air is supplied, with the exception of the kitchen and dining rooms, and in addition it may include the utility, diet kitchens and operating rooms.

The main kitchen has its own exhaust fan with a connection to the hood over the range, and a

by-pass around the fan to protect the fan in case the grease in the exhaust duct catches fire.

The sterilizing equipment involves water, steam and drainage connections, the steam being supplied from a line having about fifty pounds pressure. The arrangement of the equipment in the various utility and sterilizing rooms should be studied in order to utilize the available space to the best advantage.

All sterilizing and utility rooms should be ventilated by means of an exhaust system, fresh air being supplied from windows or by leakage. By placing the sterilizing equipment under hoods and connecting these hoods to the exhaust ventilating system, the steam and vapor from the equipment can be removed.

Liberal Phone Service Provided

The laundry is an important item in hospital equipment, as it requires the selection and arrangement of the most efficient type of machines. Mechanically, it is a matter of providing proper sized steam, water, drain and power connections, with consideration as to the best methods of ventilation. It is usual to provide a hood over the ironer connecting directly with the exhaust system, to remove some of the heat radiated from this machine.

Each private room is equipped with a telephone outlet at the side of the bed. Phone service is also furnished for each bed in wards containing two or more beds. All telephone lines are connected to the private exchange board located adjacent to the office. Telephone service is furnished to the kitchen, laundry, operating suite, nurses' station, pharmacy and boiler room.

In a large hospital both passenger and service elevators must be provided. In smaller institutions the service elevators may be used for both passenger as well as for the various services.

The service elevators must be large enough in size for stretcher service. These elevators are seldom of high speed, unless the building is of unusual height. It is important that the cars and doors at floors operate quietly and smoothly.

Where elevators are provided exclusively for passenger service, they may be of smaller size. For the handling of supplies a freight elevator should be provided, where the arrangement of the hospital is such that it requires elevator service to the storeroom levels.

A large number of additional items must be included in the mechanical equipment, for example, the nurses' call system with signal lights over the room doors, and in the diet and utility rooms, also connecting to the annunciator at the nurses' station.

A paging system for doctors is necessary. It may be some type of annunciator system or a loud speaking telephone arrangement.

Wiring and conduit for a fire alarm system must be provided. In some hospitals an electrocardiographic system is furnished involving conduits and wires from various stations on each floor to a central station.

The x-ray department is an important item that requires considerable study as to arrangement and the services demanded. Power outlets must be furnished, and lighting outlets for both ordinary lighting and red or other safe lights in the dark room and the fluoroscopic room. The dark room in this department has its washing sink and plumbing connections.

In considering the mechanical equipment of the hospital, as above outlined, we have tried to convey some conception of the amount of detail involved, in order properly to arrange the equipment and to provide each piece of apparatus with its proper service piping or wiring. In many cases the items are small, but each one requires thought and consideration, and in the aggregate they form a vast amount of detail. The ability with which the layout and mechanical and structural details are developed will be the measure of success of the operation of the hospital.

LIGHT AND HEAT INSURANCE

Duplicate equipment is expensive, but when comfort to many and life to a few hang in the balance, expense is of secondary importance. Particularly is this true when such expense ceases with initial cost.

The recent labor difficulty in the anthracite coal regions proved the advisability of duplicate equipment for many industrial and institutional power plants. Auxiliary plants for such institutions as the large eastern universities, and commercial establishments having large requirements for steam, have provided themselves with both coal and oil burners. This duplicate equipment frees the companies or institutions from dependence upon one particular type of fuel and puts them in a position to operate economically regardless of strikes, lock-outs or other difficulties.

Every superintendent knows the annoyance of having a fuse blow out, and frequently such an incident is fraught with serious consequences. To prevent this some of the better hospitals have installed a double circuit of lights. When this is done, the blowing of one fuse will not put the hospital, or a given section of the hospital in darkness.

In one of the small hospitals in a town having a population of about 15,000, the surgery was equipped with both electric and gas illumination. Since power and light companies of small towns are not so dependable as the public utilities in metropolitan centers such duplicate equipment relieves the hospital of dependence upon one source for light, and may, in case of emergency, prove to be the means of saving life or alleviating distress.

Examples of the need for such equipment are the recent earthquake in Santa Barbara, Calif., and the tornado in southern Illinois.

WHAT IS THE CORRECT BASIS FOR DETERMINING HOSPITAL COSTS?

By R. G. Brodrick, M.D., Director of Hospitals, Alameda County Hospital, San Leandro, Calif.

THE most vexatious problem in hospital construction is that of cost.

The general plan of construction, whether block, pavilion or cottage type, has much to do with cost. The block type is the most economical because it permits of the stacking of pipes and mechanical equipment, which collectively may represent twenty-five per cent of construction costs; further, the enclosing wall, or perimeter, is materially less than in detached units, and the cost of excavation, foundations, and of roof construction is much reduced. On the other hand, block or pavilion types of hospitals must, of necessity, be constructed of non-combustible material. This is at least one-third more costly than frame, or semi-fireproof construction, the latter being justified, if at all, only for the cottage or one-story type of hospital structure.

The estimated cost of constructing a hospital is usually not based on sound reasoning. Generally, a rough estimate is made of the number of beds required and the total multiplied by an arbitrary sum supposed to represent the cost per bed.

This method of measuring cost of hospital construction is most unsound since estimates are generally made by erroneous comparisons without thorough study of the problem of the type of building or of the standard of construction.

The estimated cost per square foot is likewise objectionable, owing to the difficulty of determining the exact number of floors during preliminary studies, and further because of the variation in height between floors.

It would, therefore, appear that, after the requirements have been decided upon and preliminary plans prepared, the proper method of arriving at an approximate cost is the unit of cost per cubic foot.

A recent survey reveals the interesting fact that approximately seven thousand cubic feet per patient bed is required to provide adequately for the various departments of a general hospital, exclusive of the nurses' residence, which would add about three thousand cubic feet, and make a total of about ten thousand cubic feet per patient bed. As but twenty-five hundred cubic feet, or one-fourth, is actually devoted to patients' rooms, it is readily seen how complicated and hence how costly modern hospital construction has become.

General hospitals, with a bed capacity of from one hundred to two hundred and fifty beds, of good construction and with modern equipment cost about sixty to sixty-five cents per cubic foot.

Hospitals with a large number of private rooms, individual plumbing fixtures, several operating suites, fully equipped laboratories and technical departments may average as high as seventy-five cents per cubic foot.

On the other hand, institutions for the aged and infirm, without operating rooms and complicated technical departments, may average as low as forty-five cents per cubic foot.

Nurses' residences, of fire-resistant construction, with individual rooms and suitable living quarters run about fifty cents per cubic foot.

Service buildings such as kitchen, laundry and power plant average about the same amount.

The cost of equipment, not fixed or built-in, varies according to its standard from one-fifth to one-seventh of the total cost of construction.

It is not at all probable that the increased cost of hospital construction will materially recede, because the requirements for the scientific care of the sick demand ever increasing facilities in costly equipment, as well as expenditures to improve the sanitary conditions and welfare of patients.

Among these requirements may be noted:

1. The universal demand for fire-resistant construction of hospitals.

Modern Hospital Requirements

1. The universal demand for fire-resistant construction.
2. The increasing demand for single rooms, semi-private and small wards.
3. The liberal use of plumbing fixtures.
4. More general use of metal trim.
5. Greater use of built-in equipment.
6. The adoption of electrical and mechanical devices.

Seven thousand cubic feet per patient bed is required. Cost per cubic foot: from 65 to 72 cents in first-class hospitals.

2. The increasing demand for single rooms, semi-private or small wards.

3. The liberal use of plumbing fixtures, especially water-closets and washbasins in connection with single rooms, as well as semi-private and small wards. There has not, however, been a proportionate increase in private baths.

4. More general use of metal trim, especially for doors and base.

5. Greater use of built-in equipment, such as supply and instrument cases, cabinets, lockers, refrigerators, soiled linen chutes and fire hose cabinets.

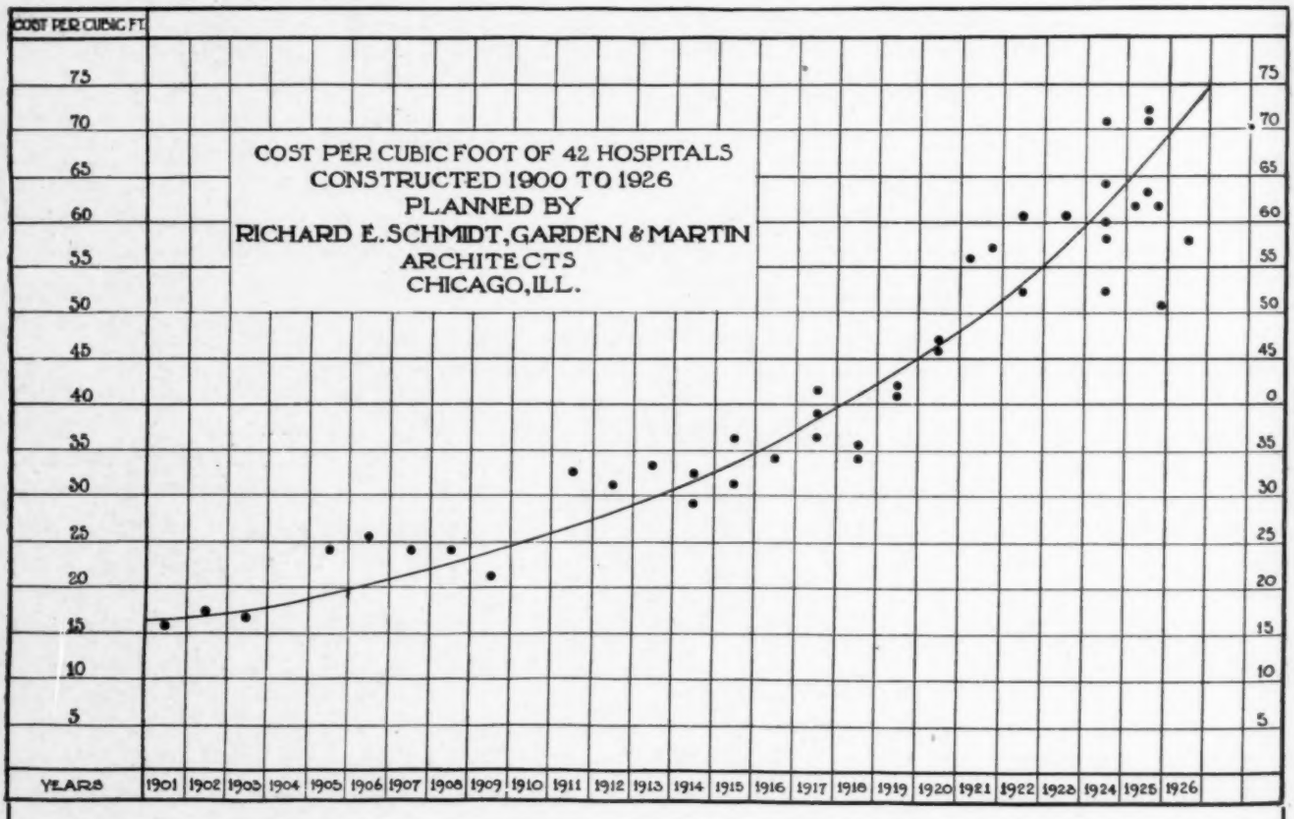
6. The widespread adoption of numerous electrical and mechanical devices, such as signals, call systems, annunciators, telephones and, recently, radio installations. In a private hospital in California every bed, including those in wards, is provided with an outlet for a telephone set.

Reduction in cost of construction can best be accomplished by concentration in planning, by avoiding wasteful duplication and by developing centralization of service, thereby economizing in the use of building material and reduction of the cubic volume.

Greater thought should be given to determine what is absolutely essential in proper and in economical hospital construction, instead of seeking new, untried ideas, in order to create a so-called modern hospital.

Valuable assistance can be given to the architect by an experienced executive or hospital consultant, but funds are often wasted, either by advisers who have not given the problem careful study, or in meeting the demands of over-zealous heads of departments who fail to visualize that there must be balance between the various departments.

In conclusion, may I stress the point that low costs of hospital construction are not necessarily always desirable. The cheapest article may eventually become the most costly, and construction cost is closely associated with the cost of operation and maintenance. Extravagance is to be avoided, but preference should always be given to durable materials that will insure low maintenance and eliminate subsequent replacements.



Curve of Hospital Construction Costs for Twenty-Five Years

Each dot represents a hospital built in the year noted below, and for the cubic foot costs in cents, by the figures in the left hand column.

All of these hospitals are fireproof construction and rated today as being in the first class. Those of higher prices built more recently have not cost so much more on account of differences in construction, but almost wholly because of increased cost of materials and labor of producing, transporting, fabricating and setting it into place.

MAKING THE HOSPITAL QUIET

By F. R. Watson, Professor of Experimental Physics, University of Illinois,
Urbana, Ill.

QUIET conditions in buildings and particularly in offices are greatly to be desired. The harmful physiological effects of noise and the consequent reduced efficiency of workers has been deplored.[1] Frequent complaints are made about the disturbing effects of typewriters, adding machines and other modern business equipment, elevator noises, loud talking, car bells and various other street sounds. Efforts have been made to minimize these disturbances by the development of noiseless typewriters, smoothly running elevators, balanced machinery and so on; and also, to deaden sounds after they are generated by the use of sound-absorbing materials applied to the interiors of rooms. Further efforts are being made to produce soundproof partitions to minimize the transfer of objectionable sounds from one room to another.

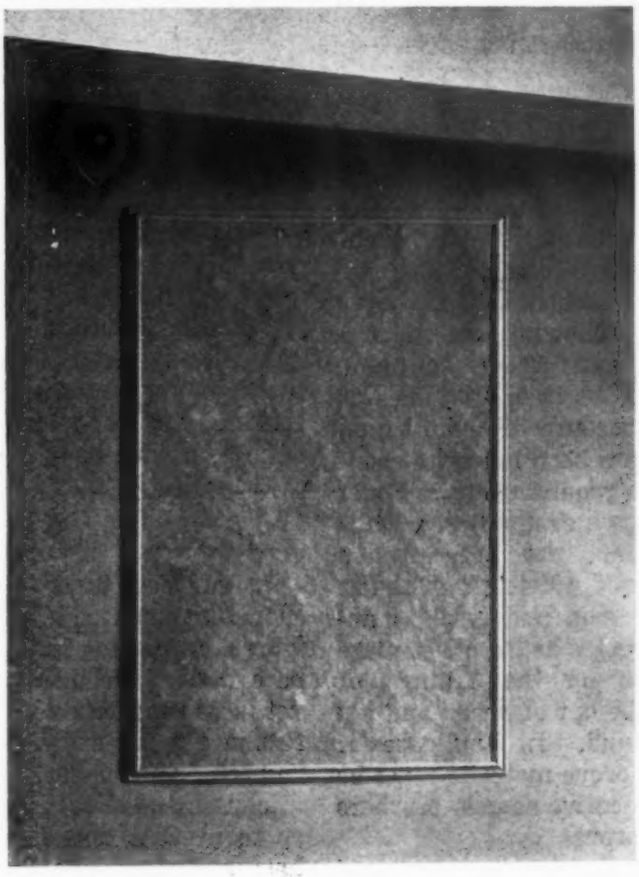


Fig. 1.—Acoustics of room adjusted by "sound blotters." These are panels of sound-absorbing material, framed by thin wooden edging, that can be hung from the picture moulding in sufficient number to suit the hearing of the occupant of the room.

Quiet in hospitals is particularly sought. If a normal person is affected by sounds and reduced in working efficiency, a patient is disturbed still more and recovery is hindered.

The means of securing quiet conditions in hospitals involves a knowledge of the scientific facts. Sound consists of a series of alternating pressures and rarefactions of the air. It is generated by a vibrating body of some kind and can travel in any sort of elastic medium—gas, liquid or solid. It is not confined to the air, as some people think, but may travel in the solid parts of the building structure from which it may be transferred to the air of a room when some wall, loose door or transom vibrates transversely. There are thus three elements to be considered in soundproofing a building. First, the means of reducing vibrations at the source; second, the construction of walls, floors and ceilings to make them soundproof; and, finally, the correct amount of sound-absorbing materials in each room to give optimum conditions for quiet.

More progress has been made in the quieting of rooms than in other corrective methods of architectural acoustics, so this element is described first. It is now quite definitely established that music is rendered best in small rooms by an optimum time of reverberation of a little more than one second. This means that a definite amount of sound-absorbing material should be installed to adjust the reverberation. Larger rooms require a somewhat longer time of reverberation and larger amount of sound-absorbent.[1]

For hospital rooms, it appears desirable to secure greater quiet than would be given by the optimum. This reduced reverberation makes it easier to understand speech,[2] and it also reduces all sounds whether they are generated in the room or come from outside. It is possible, however, to make a room so dead acoustically that it becomes oppressive. One can then hear heart beats and breathing.[3]

The degree of reverberation in a room may easily be adjusted by means of "sound-blotters." (Fig. 1). These devices may be hung in sufficient number from the picture moulding, or used as screens, to suit the ear of the patient. They can easily be removed for disinfection if desired.

1. See "Health Problems Involved in Noise and Fatigue," by Henry J. Spooner, The Nation's Health, Vol. IV, Feb. and Mar., 1922.

1. Watson, F. R., "Acoustics of Buildings," pp. 30-32.
2. V. O. Knudsen, "The Effect of Reverberation Upon the Quality of Speech." Phys. Rev., Vol. 26, p. 287, Aug., 1925.
3. S. I. Franz, "A Noiseless Room for Sound Experiments." Science, Vol. 26, p. 878, 1907.

Sound-blotters may be made of "Celotex" or "Insulite" boards that have a color harmonizing with most interiors.

In deadening rooms, the very important question arises about the kind of material needed to absorb sound. Hospitals are built to be as sanitary and fireproof as possible, and therefore it is desirable to select materials that meet these requirements. Scientific investigations show that sound is absorbed by a porous substance such as hairfelt, pressed fibrous materials, or porous plasters, in which the pores are open to the sound waves. The sound energy is changed by friction in the pores to heat. Such materials are compressed somewhat under the action of sound waves and this increases the deadening effect.

Porous Sound-Absorbing Materials

It is now possible to secure commercially a considerable variety of sound-absorbing materials, and all these are of a porous structure. The pores are thought by some authorities to be objectionable because they may afford a shelter for germs, but others question this belief. The writer is permitted to use the following statement:[1] "A study made by the committee on cleaning of the American Hospital Association indicates that the old-fashioned procedure of disinfection after contagious diseases has been largely discontinued and that all of the requirements are met by washing, with soap and water, the floors, walls and parts of the room that may have been touched by the patient or by infected particles. The use of formaldehyde, carbolic acid and lysol is unnecessary." It would therefore be logical to place sound-absorbing materials on the ceilings of rooms, where they would be out of reach and yet effective for reducing sound. In any case, if sound is to be quieted, a porous material must be used, because all of the effective sound-absorbers known to the writer are porous.

It appears desirable to deaden corridors and halls as well as rooms, because much disturbance originates in the passage ways. Sound-absorbing material on the ceilings, rubber or linoleum floors, rubber tired carts and rubber heels are devices that reduce sound.

There are now available a considerable number of sound-absorbing products. These have been developed because of the public demand for greater quiet and because commercial companies consider that this new acoustic movement offers good business possibilities.

Disturbing vibrations are of two kinds. The first are those that are low in frequency, perhaps less than 25 per second, and that shake floors, walls, doors and windows, and move people as well. Experiments show that such physical vibrations may be very annoying.[1] For instance, a considerable periodic shaking of the bed of a patient would be intolerable. The second class of vibrations are those more rapid than 25 per second. These are not likely to shake floors so as to be objectionable, but they may generate sounds that affect the ear.

In either of these cases, it is desirable to reduce the vibration at the source. Methods of controlling sources of vibrations are not always evident or available, but considerable progress has been made in securing effective results.

If the source of trouble is a machine, it should first of all be "balanced" as accurately as possible to avoid the vibrations set up by a lack of balance.[2] Fig. 2 pictures the vibrations set up in a building by a tuning fork and also by an unbalanced motor generator.[3]

The actual motions were in the neighborhood of one-tenthousandth of an inch. The main frequency of the motor-generator vibrations was 30 per second, but the photograph shows overtones. This machine, therefore, gave two types of disturbance—actual motions of low frequency that could be felt, and also higher frequency vibrations that could be heard. In spite of the smallness of the vibrations, both effects were noticed.

Prevent Vibrations Entering Building

In addition to a proper balancing, machines should be mounted in such a manner as to prevent vibrations getting into the building structure. To be effective, the insulation should be elastic and yet have considerable damping on the vibrations. Rubber supports have been found useful in this respect. The rubber should be an inch or more in thickness and should be applied in such a manner as to prevent any contact between the machine base and the foundation bolts.[4] Other materials used are cocoa fibre mats, felt, and cork, depending on the conditions.[5] Where the circumstances will allow it, as perhaps for a motor without belt connection, a machine may be "floated" advantageously on mats without foundation bolt connections.

Reducing vibrations at the source has the advantage that it is then not so necessary to have soundproof walls and quieted rooms; or rather, the last two elements are more effective because the amount of sound to contend with is less.

1. Charles F. Neergaard, consultant in hospital planning, in a letter to the writer. See also THE MODERN HOSPITAL YEAR BOOK, fifth edition, p. 180.

1. See details in "Prevention of Vibration and Noise," by Alec B. Eason, Chap. II on "Human Susceptibility."
2. Eason, l.c., Chap. VI.
3. F. R. Watson, "Vibrations in Buildings." Technograph, Univ. of Ill. Vol. 36, p. 119, 1924.
4. Watson, "Acoustics of Buildings," p. 148.
5. Eason, "Prevention of Vibrations and Noise," Chap. IV.

Elevators are often a source of noise. Elevator shafts should not be placed adjacent to rooms occupied by people, but should be surrounded by stairways, halls, outside wall or storerooms. The metal framework in which the elevator runs should be insulated as far as possible from the building structure so that vibrations will be confined to the elevator shaft. Doors leading to the elevator should be tight closing and as air-tight as possible to prevent elevator sounds from getting into hallways.

Another important element in soundproofing a building lies in the nature of the building construction. The walls and floors should be as rigid and massive as possible. Such a construction is not easily vibrated, and sounds in the air striking a wall or ceiling have small chance of getting through.

Fig. 2. (Above) Photograph of magnified motion of table top due to a tuning fork making 50 vibrations per second. (Below) Photograph taken on second floor of a building showing vibrations set up by a motor generator on the first floor.

Sound-Proof Doors

Two types of sound are to be considered; those that travel in the air, and those in the building structure. A typewriter generates both types. There is the "click" sound in the air due to the impact of the type bar and a "bump" vibration set up as the carriage moves, which is communicated to the supporting table. Sounds in air are quite easily stopped by a rigid wall that has no breaks for doors, windows or pipes. For effective wall insulation, it is obviously necessary to close any cracks around doors and pipes. Soundproof doors are now available and methods are devised to insulate steam and other pipes.

To stop the progress of vibrations in the building structure is not easy. Theoretically what is desired is a decided break in the elasticity or density of the structure, as, for instance, masonry to air. But it is practically impossible to use an air gap, because the weight of walls necessitates a contact with the floor. Good effects have been obtained by the use of air-filled materials, such as felt, or ground cork, between finish floors and the base floor, with no nails or solid connections through the insulation.[1]

Other Elements in Soundproofing

The Ventilation System. A serious drawback in soundproofing is found in the ventilation system. Ventilation ducts act like speaking tubes in the ease and efficiency with which they propagate sound. A person talking in a room can easily be heard in a distant part of the building through a system of ventilation pipes.

One simple solution is not to have ventilation pipes, but to get fresh air by opening windows. This avoids the defect of transference of sound through the pipes, but it also has the disadvantage of allowing outdoor sounds to enter. If a room is properly quieted and if a sound-absorbing screen is placed in front of the open window to prevent direct drafts, the sounds from outside are not likely to be troublesome.

Disturbing Transfer Eliminated

If a ventilation system is used in a hospital, the disturbing transfer of sound can be practically eliminated by using individual ducts from the supply chamber to each room, instead of a large main duct with branch tubes. By this arrangement sound must pass from a room to the supply chamber where its chance is small of escaping through other pipes to other rooms. Lining the walls of the supply chamber with sound absorbent is a further help.

1. "Sound-Proofing a Building." Architectural Forum, Vol. 35, pp. 178-182, 1921.

Pipes and Other Devices. To minimize sounds given out by pipes, a layer of insulation is used, that is, each pipe is surrounded by an air-filled material that prevents intimate contact with the masonry construction. In some cases, pipes are carried in a "chase" in the wall and the space around the pipes filled in with fibrous asbestos, ground cork or a similar air-filled substance.

The disturbing sounds set up by running water in basins, bathtubs and toilets may be reduced by having slow velocity streams with larger pipes. Gravity tanks on toilets are not as noisy as high pressure water-valves. In bathtubs, the entry water pipes have a special spreader faucet that throws the water against the side of the tub instead of allowing it to drop into the bottom with a disturbing pounding sound that is heard in other rooms.

Electric switches sometimes snap with a disturbing sound. It is desirable to select those with a quiet action.

Outside Noises. Thus far, only sounds generated inside the hospital building have been discussed. Outside noises are sometimes very objectionable. It is desirable to locate a hospital as far as possible from disturbing sounds. If it must be located in a city, a small park about it would diminish neighboring sounds. Buildings across the street from a hospital, by reflecting street sounds, add materially to the noises entering the hospital. Wood block pavements are less noisy than brick. Rubber blocks have been used successfully in some cases, and they are much quieter than other pavements.

Conclusion

The preceding discussion has shown that many details must be considered to control sound in buildings. Sound travels easily in many paths and some of these are difficult to follow. The vibrations are usually very small and the ear is extremely sensitive in hearing them; these facts make it difficult to secure adequate soundproofing.

FOUR USES FOR MOTION PICTURES

In the hospital field motion pictures could be made to serve four ends:

1. Assist in the training of the student nurse.
2. Assist in clinical work or intern training.
3. Educate the out-patient in sanitation and simple home health measures.
4. Entertain the convalescents.

It may be said, however, that several hospitals have purchased motion picture projectors with the full intention of making extensive use of them, only to discover that because the machine required a special size of film, it was very often difficult to get pictures on desired subjects.

Because of the varied use to which a projector can be put in the hospital only those machines using standard size films should be considered. The smaller machines are perhaps lower in first cost, but there is little profit in saving a hundred dollars on the cost of a projector only to have that supposed "saving" force the machine into inactivity nine-tenths of the time.

For the teaching of student nurses there are many good anatomical, physiological and general educational films obtainable in standard size. Very few such films, however, can be secured in special sizes, which proves the imperative need for a projector built to receive standard films. Among the many films designed for nurse training, aside from those dealing with anatomy or physiology, two that can be secured on either a purchase, or rental basis are: "Training of Nurses," and "The Call of the Hour."

Employ "Slow Motion" Device

In surgical operations it is obviously impossible for the surgeon to trace the various steps more than once. Nothing can be done twice merely for the benefit of the clinical group who may be assembled to watch the operation. Furthermore, a skilled surgeon works rapidly and, more often than not, in places quite hidden to the sight of the intern group who may be from twelve to twenty feet distant. In addition, the angle of vision for one intern may yield an entirely different impression from that obtained by another intern, with the result that the two interns leave with varying impressions of one phase of the operation. Important or highly technical operations are not frequent occurrences in every hospital, and for this reason it is beneficial to have as many interns present as possible.

Of what tremendously increased value it would be to both present and future interns if every step in an entire operation could be accurately recorded on permanent films from which an endless number of prints could be obtained. Not only could each step in the operation be seen and studied in its magnified form on the screen, but through the recent development of "slow motion" pictures, the speed of the surgeon's fingers could be so reduced that the skill could be visualized as in no other way.

It is true, of course, that every hospital cannot take its own motion pictures, and it is equally true that there is no well organized source for such technical and scientific films. Of late years quite a number of such films have been taken, but their development has been sporadic, depending entirely upon the desires of prominent surgeons. There is a distinct tendency in the direction of scientific film development, however, as today there are two enterprising surgeons in New York who are devoting their entire time to recording major surgical operations by motion pictures.

Through the National Health Council of New York City a list of the better educational and technical and scientifice films may be obtained. This list gives the source of such films, the rental price, length, brief synopsis and other pertinent information. Among the films cataloged are a great number that would be of far-reaching benefit to the out-patient. An educational film entitled "How the Fires of the Body are Fed," starts with the process of eating, and shows the food as it travels through the organs, how much of it proves to be waste, how the balance is dissolved, treated, and finally assimilated by the muscles of the body. This is done by a clever combination of actual photographic, x-ray photographic and animated drawing processes. After having seen that film one surgeon remarked: "If I could only have seen that picture while I was attending school! It took me years to learn that from actual study, and here I have seen the whole lesson in ten minutes."

SEPARATED GROUPING OF THE ACUTE AND CONVALESCENT

By Charles F. Neergaard, Hospital Consultant,
New York

THE quarter of a century just passed has witnessed a notable evolution in the hospital's plan, organization and attitude towards its patient. In its plan the most significant improvement has been the supplanting of the large ward by the smaller and more elastic unit, resulting in more service from each bed, better segregation of cases and a degree of privacy hitherto unattainable.

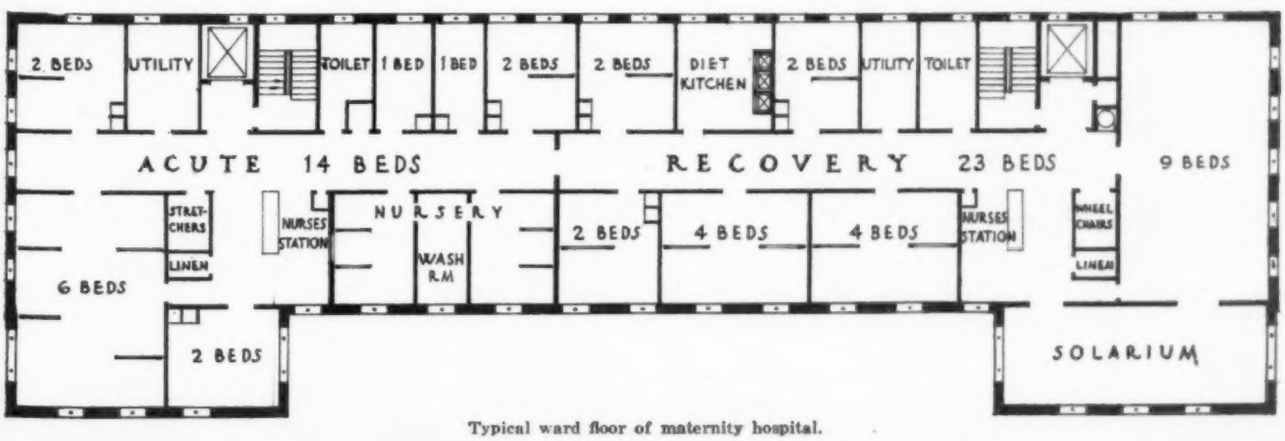
The social service department, linking the physician, the patient and the home, has demonstrated the obvious—that freedom from anxiety materially furthers recovery. A more sympathetic understanding has taught the hospital that an unfamiliar institutional atmosphere, with painfully aseptic white walls and shining metals, is not so conducive to peace of mind as more homelike surroundings, with warmer coloring and cheerful furnishings. We have learned to consider the patient's psychology as well as his pathology, that he has sensibilities as well as symptoms. Anything that contributes to comfort and recovery contributes to the efficiency of the hospital. We are constantly spending money to improve diagnostic and treatment facilities, but there are improvements possible that cost nothing.

Each patient passes through three stages of disease, acute, recovery and convalescence. Since time immemorial it has been and still continues the custom in our hospital wards to assign a case on arrival to a certain bed, where the patient remains until discharged, save perhaps for an occasional trip (in the latter stages of convalescence) to the solarium. This has many disadvantages. A patient within a few hours of discharge frequently has in the next bed one critically ill, delirious or violently nauseated. A person rapidly recovering but still nervous and sensitive is seriously disturbed by the alarming groans of a neighbor just coming out of ether. Visitors, stimulating and cheering to the convalescent, may be extremely agitating to the acutely sick case in the adjoining bed. The well laden lunch tray, a welcome diversion to the hungry, may be quite the reverse to nearby patients seriously ill.

If anything that annoys or perturbs the patient retards his recovery, the principle seems sound that the acutely ill should be kept separate from those convalescing. All that we do at present is to provide one or two quiet rooms in each unit for the noisy or dying. But why stop here?

During the war many of the general army hospitals transferred patients to convalescent wards as rapidly as they passed out of the acute stages. In an occasional private institution the value of this principle is being recognized and in some services patients are segregated in accordance with the severity of their conditions.

The plan illustrated represents a typical clean floor in a new maternity hospital soon to be erected. It aims to carry out this principle of segregation to the fullest extent. It is based on an average stay of twelve days. One elevator brings the patients directly into the acute service from the delivery rooms on another floor. The fourteen acute beds are closely grouped around the nurse's station. When the patient has passed the first four or five critical days without complications her bed is rolled into the recovery ward. Here she enters an entirely different atmosphere. Bright coloring and draperies make



Typical ward floor of maternity hospital.

cheerful rooms, and there are no depressingly sick neighbors around. Above all it is a change. The psychology of encouragement is capitalized. The move assures the patient that all is going well. This in itself is a tonic.

The advantages of this plan from the standpoint of the patient are obvious. No administrative difficulties are apparent. In nursing there is a distinct gain. The acute cases, requiring intensive care, are concentrated around the utilities. Conventionally they are scattered all over the ward floor, necessitating constant running to and fro. The same size nursing staff may be required, but better work can be done with less effort.

While the plan here shown is designed for a maternity unit the principle of segregation would seem to apply equally well to all services.

"SELLING" BY TELLING

The hospital field is woefully under-advertised and undersold. The majority of the people of the United States have little or no appreciation of the real value of hospitals.

The reason, or rather fault, however, does not lie with the public who will assimilate any information that is supplied. The average man seldom seeks information but always welcomes it. To remedy this situation is the duty of the hospital superintendent. The greatest appeal of any hospital is local and it is "up to" each superintendent to "sell" the hospital idea to his particular community.

When we know that in Minneapolis over 60 per cent of the babies are born in hospitals, while in San Diego more than 78 per cent are born in homes, we realize that the acceptance of the hospital idea is, to a large extent, a local problem. So we shall find that often our success in promulgating the hospital idea corresponds in direct ratio with our ability to promote helpful and accurate publicity in relation to our institution. We must educate the public to the hospital idea. The general run of lay minds should be made to see that a hospital is not merely a building of stone and brick on Chestnut and Forty-second Street, but an institution where humane sympathy and understanding play important parts as curatives.

Figures Tell a Definite Story

We cannot do this with generalities. Americans are literal-minded. By that it must not be inferred that the American people are devoid of imagination. Rather, they have been educated to respect figures. Probably no other nation has made as much use of statistics. Whether or not these figures are of value and whether we should depend upon statistics is beside the question. The fact remains that the public has been educated to think in terms of figures, to grasp numerals quickly and quickly to assimilate a graph. This being so, the hospital field, if it is to tell its message forcibly must follow the line of least resistance—that of statistics.

The mere statement that the general hospital cared for 52,784 patients during 1925, of whom only 262, or less than one-half of one per cent, died, would, if given wide publicity, do more for that particular hospital in its own community than a beautiful brochure mailed to every influential person in town.

March and April are the months when most babies are born. During February would it not be advisable to tell the people of your community that "This hospital cared for 280 births last year, of which only two were cesarean and three were stillbirths. The average stay of the mother in the hospital was five weeks, and the average cost $240."

We have no need to advertise to the poor. They know of the hospital service. We have little need to advertise to the wealthy. They hear of us and of our activities through the repeated requests that come to them for endowments and legacies. It is to the middle class which constitutes 74 per cent of our population that we should carry our message. They need hospital service. They purchase their luxuries and many of their necessities on the partial payment plan, so that often their salary checks are spent long before they are received. In their case sickness or disruption of the even tenor of their routine mean heavy indebtedness. The average man is too proud to mingle with the dispensary crowd and receive the needed medical or surgical assistance at a price he can afford to pay. Rather he hides his illness in the home, refusing to go to a hospital, thereby depriving himself of the care and attention that is needed for his speedy recovery and return to work.

There is little difference in advertising a hospital and in advertising any other public utility. The purpose behind the publicity effort is the education of the public, the safeguarding of health, the prevention of disease and the development of the pay patient. We should broaden our field of activity and extend our service. We have the task of defeating the adversaries of public welfare—ignorance, false pride, fear and indifference.

A Concrete Example

Not long ago a prominent director of a middle western hospital was deploring the apathy and lack of interest on the part of the public toward the community fund, a very much needed adjunct to the well-being of the hospitals in that town. The general understanding was that pay patients made up the deficit occasioned by charity patients and the attitude toward the drive was that there were too many "tag days." A report recently completed for the controllers of this community fund disclosed in detail, month by month, the work of the dispensary and the social service department. The report was for March, and showed that 279 patients were admitted to the hospital from the dispensary during that month. It also stated the number of days' stay in the hospital, the monetary value of the service rendered, and the total amount collected. The cash value of service was given as $23,035.45 and the amount collected as $4,016.82. The deficit incurred through serving patients brought from the dispensary during the month of March was $19,018.63.

One of the curses of the present age is the prevalence of delusions and the ready acceptance of half-truths. The tremendous volume of printed matter that is foisted on the public every month has developed a tendency to scan things hurriedly and to draw hasty conclusions.

If the director of the hospital or the controller of the community fund had taken the auditor's report of hospital service rendered dispensary patients and, through tactful approach, got the local papers to run it as typical of the work of all local hospitals, much would have been accomplished to correct a prevalent misunderstanding. People believe what they wish to believe until the truth has been definitely established.

Let no one think that the efforts of a few toward "selling" their institutions have passed unnoticed. Such efforts are worth while but compared with the big job of increasing the percentage of pay patients what has been done is hardly more than a gesture.

PLANNING FOR THE PRIVATE PATIENT*

A Reference List for Architects and Building Committees

THE purpose of the present report is indicated in the title. Earlier reports of this committee presented, respectively, "The Basic Principles of Hospital Planning" and "An Approach to the Preparation of a Hospital Building Program." Setting aside the broader issues covered in its earlier reports, the committee proposes now to take up a special phase of hospital planning, which involves many knotty questions concerning the wisdom or unwisdom of possible expenditures.

In dealing with the special topic as the subject of this year's report, the committee will refrain from offering advice as to the procedure which is most appropriate to a given community, time, or condition. Such advice would have little value apart from the careful consideration of the actual circumstances surrounding a concrete case. Furthermore, the committee's views might not be shared by other members of the association who claim the right to speak with authority born of experience on matters of hospital administrative procedure. Hence the report is as the title indicates, essentially a list of topics intended to be used as a reference list—as a reminder that there are many questions involved in planning for private patients, and that these questions must receive thoughtful consideration before a definite building program may be safely adopted or any set of plans or specifications approved.

Certain topics that have a proper place in a building program of a general hospital have been purposely omitted. Some of these, such as the out-patient department, the social service department, the admitting ward, are remote from the interests or welfare of private patients.

In small hospitals, private patients are necessarily cared for in the same buildings with, sometimes in close proximity to ward patients: for small groups of private patients, separate entrances, offices, reception rooms, elevators, operating rooms and kitchens cannot be provided without extravagance. For larger groups, it is desirable to plan quite distinctively, and it is feasible to do so without waste. Many of the hints that follow are susceptible of proper application only in connection with plans for separate private pavilions.

Any attempt to incorporate in the plans and specifications of a hospital all of the equipment, conveniences, and refinements that the report suggests, would result in raising the cost of construction to a prohibitive figure. The building program of a modern hospital should be formulated with due regard to every known requirement and every expressed demand whether reasonable or unreasonable; but the test of service value should be applied to each item that is eventually awarded a place in the actual plans and specifications.

To facilitate reference, the long list of topics of which the body of the report consists, has been divided into groups, which are numbered consecutively.

I

- Number of rooms on one floor or in one nursing group, i. e., the number of rooms best served by one head nurse, by one chart room, utility room, serving kitchen, etc.
  - Importance of avoiding extremes
- Sun exposure
  - East, west, south, north (preferred exposures; prevailing winds; effect of neighboring buildings)
  - Special conditions in tropical climates
- Environment
  - View
  - Development of grounds
  - Street and other outside noises; hospital's own motor traffic (visitors, ambulance, supplies); boiler room, laundry, kitchen
  - Proximity to other rooms and wards (effect on light, air, privacy); nearness to street (exposure of balconies)
- Size of rooms
  - How much is desired or can be afforded in excess of hygienic standard?
  - Value of cubic air space as affected by exposure to prevailing winds, by devices which promote natural ventilation, by mechanical systems, by screened and glazed porches
  - Legal minimum, if any
  - Relation of size of room to cost of construction and to cost of maintenance (painting, heating, cleaning, repairs)
  - Size of room in comparison with estimated room charges (local standards to be considered)
  - Does the hospital permit 24-hour nursing, i. e., will nurse and patient occupy the same room?
  - Are some rooms to be convertible into double rooms?
  - Space for
    - Bed (6x3; 6′6″x3′3″; 6′6″x3′6″)
    - Dresser
    - Wardrobe or built-in closet
    - Bedside table
    - Visitor's chair
    - Patient's couch or reclining chair
    - Wheel chair
    - Washbasin (if any)
    - Access to both sides of bed
    - Stretcher manipulation

*Report of the committee on buildings—construction, equipment and maintenance of the American Hospital Association. Personnel of the committee: S. S. Goldwater, M.D.; C. J. Cummings; Robert G. Greve; A. J. McRae, M.D.; W. P. Morrill, M.D.; Reuben O'Brien, and John M. Peters, M.D.

Shape of rooms
  Relation of bed to window and door
  Mirrors not to be visible from bed
  Placing of furniture (especial location of choice for bedside table and dresser)
Special suites
  Two rooms with connecting bath between
  De luxe suite with convertible sitting room
Two-bed rooms
  Size
  Arrangement of beds
  Cubicles (fixed partitions; material; height top and bottom; fenestrated section in cubicle partition; relation of bed to window; adjustable curtains sliding on rods or wire)
  Fenestration
  Cross ventilation.
Height of ceiling
  Hygienic requirement
  Aesthetic requirements
  Limits of cost
  Adjustment to needs of a composite group of buildings, to keep floors level and avoid ramps
Furring of ceiling

II

Built-in clothes closets vs. wardrobes
Built-in-combination closets for bed utensils, dressing trays and portable refrigerators (Mount Sinai type)
Lockers (semi-private patients)
Individual washbasins
  Type
  Brackets, legs, pedestal
  Height from floor
  Wall protection
  Hot and cold water supply
    Type of outlet
    Simplicity of design
    Height of outlet from basin
    Arrangement of shelves, towel bars, soap and brush holders (built-in or attached), and other accessories
  Hand, wrist or foot control
    Material and finish of connections above and below basin (white or red metal, nickel-plated brass, china handles, painted traps)
Cooled water supply in patients' rooms, corridor, or floor pantry
  Drinking fountain (sanitary fountain or paper cups)
  Receptacle for used paper cups (exposed or recessed)
  Filling of pitchers and thermos bottles
Direct, indirect or semi-indirect lighting for general illumination of patients' rooms
  Type of fixture; wattage; dust-collecting surfaces; choice of glass in semi-indirect fixtures to reduce glare; distance from bed; finish
Night lights in rooms and corridors
  Wall type; relation to bed; floor type; dimmers on brackets; small lamp in ceiling fixture; location of switches
Reading light for night nurse
Reading light for patient (location of receptacle)
Receptacles for portable electric lamp and for other uses of electricity at the bedside
Special wiring for portable x-ray outlet in room or corridor; distance of outlet from bed
Wiring for electrocardiography
  Location, protection from alternating current
  Location of outlets (distance from bed)
  Telephone system between rooms and heart station
Electric fan (permanent installation on fixed bracket or outlet for portable fan); distance from head of bed
Nurses' call system
  On lighting circuit; on low voltage
  Bell cord for nurses' call attached to wall (relation to bed)
  Monitor lights or semaphores; annunciators in chart room; buzzers
  Separate signal for orderly's call
  Re-set at bedside
  More elaborate systems in which calls are classified
  Emergency signals
Telephone
  Permanent or detachable 'phone
  Bell or buzzer
  Wall box for instrument
Radio installation (wiring in separate conduits, or in same conduits as nurses' signal system)
Fireplaces
  With flues; value as ventilators
  Without flues; electric heaters; ornamental effect; cost

III

Windows
  Window area (relation to floor space, to cubic mass of room)
  Fresh-air rooms
    Wide, full-length French doors with direct access to balconies, opening in or out (to be adjusted to screens and hangings); transoms over; adjustable ventilators inserted, for winter ventilation; door checks; protection at bottom against rain and draughts
  Casement windows
    Mechanical control; regulation of ventilation
  Double-hung sash with inserted adjustable ventilator and with high stool as a ventilating device
  Swinging types
  Reversible double-hung sash
  Fanlight
    Effect on light, ventilation, cost, hangings
    Fanlight control or regulation (poles, or fixed rods)
  Window guards, fixed or adjustable
  Double windows to shut out street noises (in connection with mechanical indirect ventilation)
  Storm sash
  Weather strips
  Screens
    Single, sliding, or rolling
    Material of frame
    Material and gauge of mesh
    Pockets for screens attached to sash
    Storage space
  Height of window sill
    Patient's view; safety; privacy
  Distance between ceiling and top of window
  Grooved curtains to darken rooms for eye examinations
  Shades and curtains for ordinary use
  Awnings (precluded by certain window types)
  Plate or ordinary glass
  Special (therapeutic) glass
  Metal or wood frames
  Wood, slate, or marble sills
  Plaster to return into base without trim

Relation of radiators to windows, French doors, and bed

IV

Doors to patients' rooms
- Single, with extra screen doors (maximum ventilation)
- Double, with vestibule (maximum quiet)
- Vertically divided (occupy less space when folded back)
- Double-swinging
- Transoms
  - Appraisal of need and probable use
  - Opaque or transparent
  - Transom rods or poles
- Flush (veneer) or paneled
- Wood or hollow steel
- Sound-proof (for special rooms)
- Double doors (sound-proof effect)
- Width (related to size of bed)
- Cut-out at bottom of closet doors, for ventilation
- Grille in closet and bath-room doors
- Flush saddles
- Kick-plates
- Screen door in addition to full door
  - Height, top and bottom
  - Solid, slatted or curtained
  - Rubber or felt bumpers
- Door trim
  - Wood or metal
  - Combination metal buck and jamb
  - Sanitary treatment of bottom of jamb
  - Rebating to take both solid and screen doors
- Door checks, hinges and springs
  - Automatic, concealed, floor type (space requirement)
  - Exposed pneumatic types
  - "Hold-open" device
  - Cushion pneumatic checks
  - Friction hinges
- Door knobs or hooks
  - Height from floor
  - Glass knobs or metal; finish of metal
- Door cushions, to prevent noise of slamming
- Locks (to operate only from corridor)
- Master keys
- Push plates
- Card holder (attached to solid or screen door); two spaces (for name and standing order)

V

Floor material in patients' rooms
- Hard materials
  - Terrazzo, tile, concrete, composition, etc.
- Soft materials
  - Rubber, reinforced rubber, linoleum cork, mastic, wood
- Renovation periods, cleaning methods and costs
- Color and appearance (use of rugs)
- Sanitary base
  - Terrazzo, tile, slate, metal, concrete, composition

Protection of walls from furniture by shoe at base, by base laid at angle of 45 degrees, or by guards attached to beds and furniture

Walls
- Plaster
- Wainscot of tile, marble, rubber, terrazzo, Keene cement
- Rounded or sharp vertical and ceiling corners
- Wall paint
  - Finish
    - Enameled
    - Egg-shell gloss
    - Dull
    - Stippled
  - Color scheme
- Picture molding
- Corner beads
- Corner guards

VI

Partitions
- Terra cotta, gypsum block, plaster on metal lath or metal lumber
  - Relative cost and effect
- Sound-proof partitions (especially between kitchen, elevator shafts, utility rooms, telephone booths, chart rooms and patients' rooms, and for delivery rooms and nurseries)
  - Method of construction

VII

Patients' baths for general floor use
- Porcelain or enameled iron tubs
  - Size of tub
  - Height of rim
  - Pedestal
  - Built-in or exposed
  - Access to one or two sides
  - Hand and towel bars
  - Recessed soap holder
- Showers (location of hand control; mixing valves; automatic temperature control; water-proofing of floor; dressing space
- Slab baths (special locations); material; temperature control; height of slab; height of rim over bottom of slab; location of water supply outlets; right or left head; wall protection
- Wall protection

Baths connecting with two rooms
- Direct or indirect entrance from room (noise transmission)

Individual baths
- Limited need of in most hospitals
- Shower or tub

W. c. s. for common use
- Requirements of local building code
- Number in proportion to patients
- Grouping (influence on building cost)
- Pedestal or hung type
- Flushing tanks; flushing valves (water pressure)
- Material of stall partition (marble, slate, steel, wood)
- Height of wainscot
- Ventilation of compartment
- Doors (material, swing, hardware)
- Paper holders
- Distance from rooms

W. c.'s for visitors, medical and office staff, help

Individual w. c.'s
- Swinging nozzle over w. c. or special combination fixture for emptying and washing bedpan

Emergency signals from baths and patients' toilets

Utensil closets (individual)
- Ventilated closets in patients' room or bath room
- Open shelves or racks in private bath and toilet rooms
- Utensils to be accommodated
- Method of cleaning and sterilizing (accessibility of incidental equipment)

Doctors' lavatories (in halls, if there are no wash-basins in rooms)
- Alcove arrangement
- Wrist, arm, knee or foot control

- Mixing valves; adjustable or set temperature
- Accessories
- Wall protection

Access to plumbing
- Exposed lines
  - Exposure in patients' rooms
  - Exposure in service rooms
  - Exposure in corridors and other public spaces
- Enclosed but accessible shafts (point of access outside of patients' rooms)
- Hand holes at traps
- Relative importance of access to certain lines

Material of piping
- Iron, steel, brass, copper
- Quality of local water supply
- Special material for hot water lines
- Special acid-proof trap for clinical laboratory

Size of piping
- Extra sizes for waste lines from w. c.'s and bedpan sinks

Water softeners

VIII

Chart room (nurses' station)
- Location: in corridor, alcove, or separate room
- Relation to rooms served (distance; noise of telephone)
- Medicine closet with sink
  - Counter-shelf space for medicine tray
  - Poison cabinet (special key and alarm)
- Chart desk or desks for nurses (number required); desk for house staff; desk for floor information clerk
- Chart rack or case
- Closet for medicine and surgical supplies
- Closet for dressing trays (may be in sterilizing and work room, or in central room for preparation of surgical trays)
- Telephone (long distance 'phone for visiting staff on each floor)
- Automatic intercommunicating 'phone for small hospitals

Annunciator

Automatic clock (synchronous system)
- Electric or pneumatic control

Orderlies' station
- Call system
- Desk for charting
- Closet for utensils and supplies

Call system for house staff (silent or audible)

Call system for visiting staff (silent or audible)

Telautograph

Linen rooms or closets
- Open (portable) shelves or closed cabinets
- Height of topmost shelf
- Sloping top, or flush plaster above built-in cabinets
- Height of counter-shelf
- Floor space for empty carts
- Distance from patients' rooms (one or two closets on floor)
- Method of distributing regular linen supply to rooms (relation to size and location of closets)
- Relation to service elevator
- Floor treatment (terrazzo, cement, etc.)

Special nurses' dressing and rest room
- Central dressing room, or room on each floor
- Lockers (size; legs or pedestal; shoe-shelves or holders; duplicate keys)
- Dressing booths
- Shelves for bags and hats
- Chair space
- Couch space
- Dressing table
- Full-length mirror
- Bath and w. c.

Nurses' rest room on each floor
- Adjoining chart room, if possible (within sight of annunciator)
- Indirect entrance (to confine noise)

Nurses' toilet on each floor

Scale for weighing patients

Closets for blankets and supplies (locks for security)

Wheel-chair closets

Flower sinks and shelves

Stretcher closet

Portable tub closet

IX

Corridors (main)
- Width
- Noiseless and sanitary flooring (extend into each doorway)
- Protection of edges where terrazzo border is used with linoleum center
- Sanitary base
- Protective (extended) base
- Wainscot (tile, terrazzo, rubber, Keene cement, etc.)
- Stretcher rail
- Direct ventilation
- Division of long corridor to minimize noise (wide glazed single door, swinging both ways; double-swinging doors; protection of doors from stretchers)
- Arched or flat ceiling (esthetic and acoustic effects)

Corridor lighting
- Full
- Reduced
- Number, character, location of fixtures
- Night lights
- Emergency gas

Mail chute

Corridor "quiet" and direction signs

Name and number plates for rooms

Telephone booth of corridor on each floor (relation to patients' rooms)

Service corridor, cut off door

Stairways
- Construction
- Safety tread
- Height of hand-rail
- Width of stair (stretcher traffic)
- Emergency lighting

Ramps
- Maximum inclination
- Non-slipping surface

X

Fire apparatus
- Fire towers
- Fire stairs
- Fire escapes
- Fire lines (pressure or gravity tank)
- Fire hose (hose racks; reel boxes)
- Exit signs (illuminated)
- Signal system
- Sprinklers
- Chemical extinguishers (accessibility; visibility)

XI

Service corridor apart from main corridor to control noise

Floor serving room

- To be coordinated in equipment with central diet kitchen and serving room
- Floor space for tray carriages or food carts
- Working space for nurses (probable number of special nurses)
- Direct service elevator or dumbwaiter service
- Daylight and artificial lighting
- Floor and wall treatment (material and color)

Elevator control
Emergency (breakdown) elevator service
Distance from patients' rooms
Refrigerators
- Central cooling system (location of brine lines)
- Local automatic refrigerators
- Portable refrigerators
- Cracked-ice receptacle
- Coil bunkers
- Drainage
- Sanitary condition below and around refrigerator

Tray preparation space (table, rack, counter-shelf)
Sanitary cupboards, wood or metal, with shelves away from wall; height of top-most shelf; extent of shelving; locked sections
Pantry sink, single or double
- Material (appearance; durability; cost)
- Height from floor
- Drain boards

Dishwashing machines (effect of noise on nearby patients)
Dish sterilizer
Plate warmer
Steam table (unnecessary if food is served from carriers)
Gas stove (location)
Egg boiler
Toaster
Electric plugs
Hood (exhaust ventilating flue)
Garbage closet (ventilated)
Drying closet or flue for dish cloths
Maid's closet

XII

Utility room
- Distance from farthest room
- Lighting
- Floor and wall treatment
- Floor area required
- Bedpan sink, washer, sterilizer
- Utensil sterilizer (size; steam or electric; stand or bracket; ejector; exhaust; distance from wall; lifting mechanism)
- Instrument sterilizer (size; water supply; hood over)
- Deep sink with long drain board
- Utensil rack, closet or shelves
- Bedpan warmer
- Washbasin
- Gas or electric heater
- Specimen closet, ventilated
- Bottle closet
- Solution cabinet (heated)
- Blanket warmer
- Cracked-ice box
- Soiled clothes hamper (chute adjoining)
- Covered container for waste
- Incinerator (local or central)
- Airing closet
- Electric plugs

Utility equipment separated into two or more groups
- (a) Utility and sterilizing room (to contain instrument sterilizer, sink, hot plate [gas or electric], dressing trays, surgical solutions, water sterilizer, utensil sterilizer, work table, blanket warmer)
- (b) Sink room, for bedpan work primarily
- (c) Sub-sink room (appropriate to long corridor)

Chute
- Location
- Material (glass, aluminum, galvanized iron, copper, tile, plaster, sewer pipe)
- Size
- Ventilation
- Flushing device

Doors to sink room
- Double-acting (glazed panel; double-acting doors to sink and other service rooms to be set back from side of corridor; noiseless action of springs and hinges)

Sterile water
- Sterilizer for each floor
- Piped system to floors (distance from sources—safety factor)
- Distribution in flasks (warming cabinet)

XIII

Patients' sitting rooms
- Common sitting rooms for convalescents
- Individual sitting rooms (special suites)

Convalescents' dining room
Solaria
- Exposure
- Size proportionate to need
- Windows
- Heating

Balconies on all floors
- Exposure to sun
- Exposure toward street
- Height of rail
- Screens
- Floors of roof; tile or cement
- Drainage
- Width (full width for balconies to be used by patients in common; minimum for private balconies connected with individual rooms)
- Electric plugs for bed-pads
- Nurses' call system

Development of roof
- Uncovered
  - Pitch for drainage
  - Water outlet for hose for cleaning
  - Flush saddles for wheel-chairs
  - Roof tile
  - Height of parapet
  - Height of railing or cornice
  - View through railing or cornice
  - Material of cornice (cost of upkeep)
  - Flower boxes
  - Signal to nurses' station
- Covered—sides open
  - Permanent shed vs. awnings
- Enclosed sun parlor for general use
  - Casement or sash windows
- Smoking room
- Roof chair storage
- W. c.'s
- Pantry
- Sink room
- Blanket warmer
- Telephone booth
- Relation of vent outlets to breathing line

XIV

- Special rooms
  - Children's rooms
    - Accommodations for mothers
    - Separation from adult quarters
    - Relation to pediatric wards
  - Guest rooms (with bath)
  - Visitors' room on each floor (see sitting room for convalescents)
  - Isolated rooms for delirious patients (sound-proof)
  - Isolated room for contagious case (with complete service equipment)
  - Treatment and examining rooms (semi-private service)
  - Maternity section (to be treated fully in separate report on maternity hospitals)
    - Labor and delivery rooms (sound-proofing)
    - Sterilizing room
    - Scrub-up
    - Preparation room
    - Septic suite
    - Nursery (relation to mothers' rooms)
    - Infants' washroom
    - Isolation for sick infants
    - Premature room
    - Staff dressing room
    - Nurses' dressing room
    - Rest room near delivery room for obstetrician

XV

- Suite for supervising nurse or other executive officer
- House staff quarters (may be in main hospital)
  - Bedrooms
  - W. C.
  - Shower
  - Lavatory
  - Sitting room
  - Special quarters for women interns
- Dormitories for nurses (in main hospital)
- Dormitories for help (in main hospital)

XVI

- Main entrance
  - For exclusive use of private patients (large hospital); or to be used in common with ward patients (small hospital)
- Vestibule or revolving door
- Information desk
  - Location (visibility from entrance; controlling view of reception room and elevator)
- Telephone exchange
- Space with bench or chairs for hall and errand boys
- Telephone booths
- Private office
- Bookkeeper's and cashier's office
  - Vault or safe
- Desk for writing checks
- Large reception room (separate from waiting room of ward patients)
- Small sound-proof reception room
- Private offices and examining rooms for staff
- Visiting physicians' office and locker room
- Office-staff locker and rest rooms
- Electric clock to record and control response to patients' calls for nurses
- In-and-out staff board
- Room directory
- Key cabinet
- Clinical record room
- Umbrella closet or checking-stand near front door
- Parcel room
- Admitting (examining) room
- Ambulance entrance
  - Level entrance or ramp
  - Signal to front office
  - Stretcher closet adjoining
  - Relation to elevator
  - Access to operating or emergency room
- Parking space for motor vehicles (distance from patients' rooms)

XVII

- Operating rooms
  - Number of operating rooms
    - Maximum and minimum demand
    - Requirements of closed and open staffs
  - Location (route from and to patients' rooms)
  - Size (service set-up; space for circulation of attendants)
  - North light; skylight (inclination of skylight—summer and winter effect)
    - Balconies outside of fixed operating room windows
    - Area of window space
    - Protection from down-draughts
    - Arrangement for open section and screening in summer
  - Artificial lighting system (indirect lighting; semi-indirect; direct, with mirrors or intensifiers; filtered light; portable standards; adjustable brackets, etc.)
    - Surgical lighting
    - Ordinary illumination
  - Emergency lighting system
    - Automatic electric, or multiple-jointed gas brackets behind glass screen in wall; combined overhead electric and gas fixture
  - Floor drain (flush valve)
  - Doors to operating rooms
    - Width
    - Double-acting hinges
    - Sliding doors, exposed or in concealed grooves; access to grooves; hand or pneumatic foot control
    - Glass panel (height; size)
    - Protection from stretchers
  - Portable stands or built-in galleries
    - Access to galleries and stands
    - Relation to operating table
    - Relation to aseptic working tables
    - Relation to window and skylight
    - Seating arrangements
  - Built-in instrument and supply cabinets in operating room
    - Metal or glass doors
    - Counter-shelves or sliding shelves
  - Electric receptacles
  - X-ray display box
  - Surgeon's scrub-up (in operating room, in alcove adjoining, or in corridor)
    - Height of sink from floor
    - Elbow, knee, or foot control
    - Brackets or pedestals
    - Single or double sinks
    - Height of water supply outlet; spray
    - Mixing valves
    - Soap and brush containers
    - Towel shelf
    - Clocks over sinks

- Dressing room for visiting staff
  - Shower
  - Toilet
  - Lockers
  - Telephone
  - Space for desk, couch, chairs
- Telephone booth, coat closet, and lavatory for medical visitors
- Separate dressing room for courtesy staff
- Dressing room for house staff
- Special operating rooms for nose and throat (dark); eye; urology (x-ray machine); orthopedics (plaster-sink); septic cases
- Compressed air and vacuum for throat work
- Arrangement for darkening eye operating room
- Surgical treatment or dressing rooms
- Recovery room
- Anesthesia rooms
  - Relation to elevator; to operating rooms
  - Number
  - Small sink
  - Decoration of room
  - Ventilation
- Stretcher protection of operating room corridor walls
- Sterilizing and work room
  - Central or local plant for sterilization of surgical dressings
  - Electric or steam sterilizers
  - Built-in dressing sterilizers and autoclaves (access from rear)
  - Hood over instrument and utensil sterilizers (if open type)
  - Hand or foot-control of lift
  - Hydraulic or oil pump-lift
  - Ejectors
  - Vents
  - Exhaust ventilation of room
  - Water sterilizers
    - Water distillation; size of units; sterile water water outlets in operating rooms; duplicate equipment for emergencies; recording gauge
  - Salt solution sterilizer and mixer
  - Ample closets for drums and supplies
  - Work tables and counter-shelves
  - Deep sink
  - Metal or wood cabinets (sloping top, or built-in flush with plaster)
- Instrument room
- Tables or counter shelves
- Apparatus room
- Supervising nurse's office (telephone)
- Nurses' dressing room and w. c.
- Clinical record room
- Orderlies room (soiled linen, brooms, mops)
- Private consulting room near operating room
- Dressing and rest room for ambulatory (minor surgical) patients
- Pathological (frozen section) laboratory, adjacent to operating room
- Signal system for operating rooms (connections with (a) supervisor's office, (b) anesthesia rooms)
- Vacuum for anesthesia
- Vacuum for surgical drainage
- Local control of mechanical ventilation
- Floor, wall, and ceiling treatment
  - Material (tile, marble, terrazzo, glass, plaster, rubber, composition)
  - Height of wainscot
  - Color scheme
    - Floors
    - Walls
    - Ceiling
  - Finish (i. e., of plaster)

XVIII

- Clinical laboratory
  - Floor treatment (terrazzo, tile, linoleum, cement, slate, asphalt)
  - Wall protection
  - Ventilation
  - Refrigerator
  - Sinks and drain boards
  - Acid-proof waste lines and traps
  - Peg board
  - Microscope table
  - Material for table-tops; carbonized wood, glass, slate, petrolite; alberene
  - Cabinet
  - Reagent shelves
  - Centrifuge
  - Hood
  - Gas and electric outlets
  - Desk space
  - Telephone
- X-ray department (in main hospital, or separate division for private patients)
- Hydrotherapy (in main hospital, or separate division for private patients)
- Phototherapy (in main hospital, or separate division for private patients)
- Electrotherapy (in main hospital, or separate division for private patients)
- Thermotherapy (in main hospital, or separate division for private patients)
- Heliotherapy (in main hospital, or separate division for private patients)
- Massage (in main hospital, or separate division for private patients)
- Mechanotherapy (in main hospital, or separate division for private patients)
- Dentistry (in main hospital, or separate division for private patients)
- Inhalatorium (in main hospital, or separate division for private patients)
- Electrocardiography (outlets within 50 feet of each room)
- Pathology, immunology, bacteriology, chemistry (in main hospital)
- Morgue and autopsy room (in main hospital)
- Clinical photography (in main hospital)

XIX

- Kitchen
  - Separate kitchen for private patients (volume of service)
    - Location in relation to floor serving rooms
  - Diet kitchen
- Windows
  - Height of sill
  - Manipulation of sash
  - Screens
- Doors
  - Width
  - Locks
  - Protection from trucks
  - Screens
- Skylights
- Areas (outline of basement windows)

- Width; lining
- Dietitian's office
- Meat-cutting room
  - Block; cutting bench; meat sink; fish sink; fish block; slicer; chopper
- Preparation room
  - Sinks (size, number, kind)
  - Drain boards
  - Potato peeler (drain)
  - Ice cream freezer (automatic or hand; temperature of brine)
  - Salt bin
- Salad preparation
  - Tables; sink
- Scullery
  - Sinks
  - Racks
- Refrigerators
  - Classification
    - Meat (trolley)
    - Vegetables
    - Fruit
    - Milk, butter, eggs
    - Space and equipment for handling supplies for floor kitchens or pantries
    - Fish
    - Garbage
    - Ice cream storage
    - Ice
  - Size
  - Anti-room (air lock)
  - Construction
    - Location of coils
    - Access to ice chamber
    - Insulation
    - Lining
    - Drainage
  - Relation to receiving room
  - Relation to preparation rooms
  - Relation to kitchen
  - Relation to refrigerating machine
- Kitchen equipment
  - Ranges
    - Number of sections required
    - Gas; coal; electricity
    - Cost of fuel
    - Relative advantages, summer and winter
  - Broiler
  - Kettles (size, number, material)
  - Steamer
  - Oven
  - Mixing machines
  - Food chopper
  - Bread slicer
  - Can opener
  - Sinks (grease traps)
  - Cabinets (supplies; dishes; silver)
  - Steam tables
  - Work tables (material)
- Bakery
  - Volume of work
  - Flour storage
  - Dough mixer
  - Steel or wood troughs
  - Ovens (size and type)
  - Pastry kettle
  - Cake machine
  - Sink
  - Bakers' table
  - Dump table
  - Pastry table
  - Proof cabinet
  - Racks
  - Refrigerator
  - Gas or coal stove
- Serving room
  - Are trays to be prepared at central point under dietitian's direction, or in floor serving rooms
  - Bulletin board
  - Relation to service elevator or dumb waiters
  - Set-up tables
  - Steam tables
  - Hot-water plates (arrangement for filling)
  - Bread rack or box
  - Urns
  - Egg timers
  - Toasters
  - Refrigerator (cold table)
- Dishwashing room
  - Relation to service elevator
  - Sound absorption
  - Machine
  - Size of soiled and clean dish counters
  - Silver and glass sinks
  - Silver burnishing machine
- Electric outlets for warming tray carriages (not necessary if individual hot-water plates are used)
- Storage and washing space for food carts or tray carriages
- Utensil closet
- Cleaners' closet with sink
- Equipment for washing milk cans
- Kitchen supplies
  - Receiving station (office for checker, scales, etc.)
  - Dry Storage
  - Cool room
- Garbage closet
  - Removal (chilled room), or incineration
- Lavatory and toilet for kitchen help
- Kitchen construction and equipment
  - Floor material
  - Wall finish
  - Relation of fixtures to walls
  - Floor drains
  - Lighting
- Dining room for special nurses
  - Serving room; cafeteria system
- Dining room for kitchen help
  - Service
- Dining room for staff and regular nursing and domestic force (in main hospital)

XX.

- Housekeeper's office
- Central linen room
- Laundry (in main hospital)
- Cleaners' closets with sinks on all floors (space for mops, pails, and brooms; ventilation; sanitary finish)
- Rug cleaning room (connection with vacuum cleaner)
- Vacuum cleaning system
- Incinerator charging room
- Mattress and clothes sterilizer or gas-tight fumigating room
- Mattress airing space
  - Patients' trunk room
- Furniture storeroom
- Storage closet for ladders, etc.
- Storage space for screens

Repair shops (in main hospital)
Locker, rest, and toilet room for male help
Locker, rest, and toilet room for female help

XXI.

Elevators
- Estimated elevator requirements
- Elevator lobby
- Public elevator with switch control
- Patients' elevator
- Service elevator (switch or push-button control)
- Conveyors (chain system)
- Size of cars
- Finish of cars (floors and sides)
- Width of doors
- Door control
- Speed (public and patients' elevators)
- Micro-drive
- Safety devices
  - Mechanical lock
  - Electric contact
  - Safety-tread at landing
  - Fort-light
  - Emergency exit
  - Telephone
- Indicators over doors
- Closed shafts
- Warming of shaft of patients' elevator
- Finish of shaft
- Location of machinery with reference to noise

Dumbwaiters (electric or hand)
- For food service
- For drug service
- Control

Pneumatic carrier system

XXII.

Heating of patients' rooms
- Gravity, Vacuum, vapor, modulation, steam
- Hot water system
- Exposed or hidden steam lines

Radiators
- Distance from wall
- Hospital open-column type
- Hung on brackets (legless type)
- Relation to bed and other furniture
- Relation to curtains and French doors
- Finish

Automatic temperature control
Steam heat for operating rooms (special reduced-pressure-steam supply for spring and fall)
Radiation in corridors
Location of heating and power plant (noise production; relation of stack to patients' rooms)

XXIII.

Ventilation of patients' rooms
- Natural
- Mechanical (exhaust only; or supply and exhaust)
- Ducts accessible for cleaning

Air-cooling apparatus for patients' rooms
Humidifying apparatus for patients' rooms
Ventilation and air-conditioning for operating rooms
- Indirect—air washer
  air cooler
- Direct air screens

Ventilation of kitchens, serving rooms, dining rooms
Ventilation of toilets; sink room; utility room; sterilizing rooms; clinical laboratory; anesthesia rooms; cleaners' closets
Ventilation of corridors
Local mechanical or unit system for individual rooms

XXIV.

Locations where wall protection (tile, marble, terrazzo, rubber, metal) is (a) indispensable, (b) desirable
Acoustical treatment
- Sound-absorbing material in corridors, kitchen, sink rooms, patients' rooms; sound-proof doors and partitions

Color scheme for reception rooms, patients' rooms, corridors, sun parlors
Water treatment
- Filtration
- Distillation
- Softening

Scheme for future enlargement (horizontal vs. vertical extension)

GETTING THE MOST OUT OF THE LABORATORY

The scientific and intelligent study of the problems confronting the hospital in the execution of its duties is impossible without the active cooperation of the laboratory, according to Dr. Robert A. Kilduffe, formerly director of laboratories, Pittsburgh Hospital, Pittsburgh, Pa. If the laboratory confines itself simply to the collection and issuance of a mass of statistical data it fails in its true function, for the laboratory and the hospital cannot be successfully separated.

The laboratory must through its studies not only bring forth and establish certain facts as indicated by certain findings, but should also take an active part in establishing the relation between these facts and others elicited in the particular case under consideration. Unless there is cooperation between the departments engaged in the study of a particular problem the work done does not achieve the greatest good.

A liaison between the laboratory and the clinical side of the hospital is essential, as is also the recognition of the fact that, specialized as the practice of medicine has become, there is no specialty so distinct as to enable it to withdraw from contact with medicine as a whole. The proper understanding of one branch necessitates at least an intelligent conception of the others.

Without a properly functioning laboratory a properly functioning hospital is an impossibility, and the work of the laboratory cannot be gauged simply by the number of reports that it issues.

The Egyptian and the Chaldean created the ideals of valorous and pleasure-loving men; China, Persia and Judea of self-denying and austere men; India of the rationally conscientious man who in Hindustan is contemplative and compassionate; in Japan, sensitive; in Greece appreciative of every form of truth and beauty; in Rome constructive; and in the farther and later west, scientific. In England individualized, in France socialized, in America where west again becomes East universalized; Eygpt and Babylonia created the national ideals of power and splendor; Iran and Judea of ceremonial righteousness, Greece created the ideal of citizenship; Rome the ideal of justice. England has created the ideal of civil liberty; France the ideal of social equality. America is slowly but surely creating the ideal of a broad and perfect equity, in which liberty and equality shall for all time be reconciled and combined.—*Giddings—"Ideals of Nations."*

The MODERN HOSPITAL

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WORKMEN'S COMPENSATION AND THE HOSPITALS

THE agitation for the abolition of the "fellow-servant" doctrine and of other common law practices or devices that wrought signal injustice to the wage earner sustaining injury at work brought forth in the course of the past decade a tide of legislation known as workmen's compensation laws.

Almost every state in the Union now has a statute providing some measure of compensation to the injured workman. Workmen's compensation undoubtedly marks an important step forward in social legislation. It is universally recognized as a successful social remedy for certain social ills, although here, there and everywhere certain details are being continuously changed and defects amended.

From the very start, however, this legislation has been seriously limping on its medical foot. Unlike its economic features, the medical phases of workmen's compensation legislation were not adequately thought out before the tide swept the country. Hospitals have had grievances against the administration of the laws from the beginning, and these grievances have not been met satisfactorily. Aside from the question as to whether an ambulatory patient receiving compensation benefit may be treated in an out-patient department without straining, as in New York State, the legal definition of a "dispensary," the hospital problems relative to this type of patient are many.

Leaving aside questions of an internal character, such as provision of special facilities for treatment and rehabilitation, the most vexing problem is that of proper charges. The hospitals feel that the casualty companies evade the fundamental intention of the law when they fail to pay the full cost of hospital maintenance of compensation cases. They point out that the entire cost of necessary hospital care should be borne by industry and should not be shifted to charity as is the case when the payment is less than the actual cost.

The insurance carriers maintain that in view of the differences that prevail in the per capita costs of hospitals it is impossible for them to satisfy all hospitals; that in some hospitals the high per capita costs may be the result of inefficient management, over which the insurance companies have no control and for which they should not be penalized; and that the intention of the law is not evaded when they pay the prevailing ward rates, since the law does not intend that the injured workman should receive accommodations superior to those to which he ordinarily resorts

in illness. If the same workman had sought hospital admission for a condition other than compensable injury, he would have paid the prevailing ward rate which is, as a rule, lower than the actual per capita per diem cost.

There is truth in the contentions of both sides, and some agreement as to a common basic rate that would apply to all hospitals, such as has been established in Ohio, would go a long way toward settling the issue.

A conference on this subject, with authorized representatives of the casualty companies, at the next annual meeting of the American Hospital Association may pave the way to a satisfactory settlement as to rates and accommodations, such, for example, as special wards for industrial cases.

INSIGNIA OF SERVICE

IT WAS no idle fancy, accident or love of the picturesque that inspired heraldry; on the contrary, it was a practical application of the psychology of leadership.

In an age when illiteracy was so general that no man who could read and write might be put to death, it was necessary to have some mark of identification, some symbol around which men might group, fight and, if need be, die. The bulk of humanity then, as now, was in the picture reading stage. A broken bridge upon a scutcheon conveyed the word *pontefract* just as surely as if it had been written in six-inch letters; a red rose, a silver lily or a sprig of broom were emblems to be followed to victory or defeat, glory or death.

Those whose right it was to display a crest and blazoned shield took pride in these heraldic markings and the traditions which they bespoke. They were embroidered on banderole and pennon, woven into tapestry, etched on armor, engraved on silver, painted on walls and carved in castle stone as the devices of chivalry and pride. They have persisted to this very day and the Hospitalers' cross, the three ostrich plumes, the fleur-de-lys, the lion and the unicorn convey a symbolism today as surely as they did half a millennium ago.

For about three years the staff of THE MODERN HOSPITAL has been industriously searching for insignia that shall be the armorial bearings of the hospital field—insignia that shall symbolize the quality of devoted service expressed in the words of My Pledge and Creed.

Members of the staff have searched the realms of antiquity at home and abroad. The Egyptian, Greek and Roman symbols have each been considered. The caduceus, the staff of Æsculapius, the rainbow of Hope, the ansated cross, or ankh, of the Egyptians, the pine cone and the pine tree of the Assyrians, the olive tree and the fruitful vine have all been passed in review. Hygeia and her patina, the bowl of her sister, Panacea, the frescoed serpents of the temple of Æsculapius have been studied. In the Wellcome Medical Historical Museum in London old diplomas, medals and many other objects have been carefully examined. In Paris, Milan, Florence and Rome, monuments, sarcophagi, statues and manuscripts have been made the object of the quest. Many designs have been drawn. The all-embracing golden circle of charity has been thought of. Stars, crosses, cabalistic marks, the symbols of long forgotten religious cults, all of these have been ransacked. Regretfully it must be admitted that up to date nothing has been brought forth which is exactly satisfactory.

This is not remarkable when it is considered that the symbol being sought must be very simple and capable of being incorporated into architectural designs. It must be distinctive, and must carry to the mind of the observer as definite a meaning as does the red cross, the star and crescent or the eagle. It must be, so to speak, the heraldic device of the entire hospital field and as such, it must embrace medicine, the care and feeding of the sick and the profession of hospital architecture. It must not be offensive to any religious faith. It must be dignified and capable of artistic development. In black and white, in color, or in relief, it must breathe the altruism, kindly sympathy and hope that animate the hospital field. It should be readily adaptable for the use of hospital associations, training schools and hospitals as a nucleus for their individual insignia where such are utilized. It must be as accurately symbolic as the scales of justice.

Although the quest has not yet proved successful, it is believed that the effort is well worth while if eventually there may be evolved a symbol that shall be the seal of the hospital world. Man is an animal that symbolizes; countless thousands have been uplifted and have devoted their lives to the service of some simple sign. Man lives, thinks and acts in symbols, and we who are endeavoring to relieve suffering, to promote health and to be of genuine assistance to our fellowmen need a simple device that shall crystallize the idea which we are all following.

The staff of THE MODERN HOSPITAL has decided that this is too big and broad a problem for it to solve unaided and it therefore requests—nay, pleads for the assistance of the clientele that it

is serving. Suggestions, drawings and ideas will be welcome, since, as the result of much thought and study, it is believed that there is a genuine need for something that shall be the "crest and crowning" of the hospital field. The editors hope to have comments and suggestions from every reader of THE MODERN HOSPITAL.

TALKING IT OVER

APROPOS of the editorial in this issue about insignia for the hospital field, the newspapers recently carried an interesting dispatch about the insignia of a certain untutored family in one of the southern states. It seems that for generations, it has been a tradition of this family to have always a blue door, window or gate, this being a sort of family escutcheon. The members of this family have a reputation for thrift, sobriety, interest and honesty and take great pride in their insignia. Perhaps this very pride has contributed not a little to the maintenance of this reputation.

The purpose of insignia for the hospital field is to stimulate pride in what we are doing and to signalize to patients the fact that it is a "blue door, window, or gate" opening to cleanliness, sympathy, remediation and cure.

* * *

THE need for insignia that will symbolize the highest ideals of hospital service has long been recognized by all of us. Such insignia, created under right auspices and safeguarded against any improper use would very soon become as significant to all people as has the emblem of the Red Cross.

Such a symbol would be adopted by hospitals, associations, organizations, training schools and other agencies of service as the nucleus or central theme of their individual official seals. It would become the hallmark of a service whether carved in stone, incorporated in the official seal, painted on the ambulance, engrossed on the diploma or lithographed on the letterhead. The creation of such a symbol should not be the work of one individual or one group, but the combined responsibility of all workers in the hospital field. All are interested and all should assist. In the spirit of "Talking It Over" this subject will be discussed at greater length in the April issue. Your views and the suggestions of your associates in your hospital are requested.

* * *

HOSPITALS of the future and their relationship to the public and to medical education, constituted the principal theme of the recent address delivered by Dr. Henry A. Christian, the distinguished physician-in-chief of the Peter Bent Brigham Hospital, Boston, at the laying of the corner stone of the Albert Merritt Billings Memorial Hospital, Chicago. Dr. Christian pictures two general types of hospitals for the future, the one primarily concerned with the expeditious care of many patients, the other chiefly devoted to medical education and research. Both types, as thought of by Dr. Christian, will be quite different from hospitals as now developed.

* * *

THE hospitals of the first type, according to Dr. Christian's musings, will contemplate a broader service from the ambulatory diagnostic clinic, because diagnostic methods, though numerous and complicated, are rapidly being simplified and may be applied to patients who make periodic calls at appointed hours. This will mean that in future more patients, already worked up from the standpoint of diagnosis, will be admitted into our hospitals, ready for appropriate treatment. This preliminary working up will probably be carried out by a general diagnostic service. Therapeutic measures will be instituted almost immediately after the patient becomes a resident in the hospital, where he will stay a relatively short time. The period of recovery will be spent in out-of-town branches, somewhat of the nature of convalescent homes. Improved methods of transportation will make this feasible, and the economic advantages as well as the therapeutic benefits of fresh air, sunlight, and nearness to nature will be deciding factors. Interns and resident physicians will serve in rotation in both the urban and country branches of the work. Surgery, as such, will be recognized as but a form of therapy, while both surgeon and physician will work harmoniously in the general diagnostic clinic, each without concern as to whether he is on medical, surgical or special service. The efficiency of such a hospital will be measured largely in terms of excellent and expeditious care of patients.

* * *

THE second type of hospital imaged by Dr. Christian will be concerned primarily with medical investigation and medical education. In this institution selected and special types of diseases will be admitted for study, and patients will remain much longer than in the future successor to our present day community hospital. Not only will the resident and visiting staff be larger in proportion to the number of patients than in the type described here, but more staff members, and possibly all, will devote their entire time to work within the walls of the institution. This teaching and research institution will have not only the essential facilities, but, in addition, extensive equipment for investigation of problems that are chosen for special study. In short, such a hospital will be a research laboratory for the investigation of special problems and of necessity it will be organized much along the lines of an institution of biology or physics or chemistry, with the one vital difference that the hospital is peopled with patients who require all the diagnostic and therapeutic skill and the best nursing care obtainable. Such hospitals will logically be developed as integral parts of universities and their effectiveness, in a large measure, will be judged by their productivity in research.

* * *

GREEN grass and well trimmed hedges, flower bordered walks and shady trees, how much these improve the appearance of a hospital, how much they take away from it the cold, forbidding air of a factory.

A few dollars spent in bulbs each year, a little intelligent gardening and an interest in the green growing things bring to the sick and their friends a healing atmosphere. Even a little plot of well trimmed grass and a flowering shrub or two delight the eye and bring a sense of rest and comfort. Of course in thickly built-up cities, it is frequently impossible to have these things, but where ground is cheaper and there is more of God's fresh air and sunshine, it is always possible to do a little landscape gardening.

* * *

ONE of the best examples of a trustee who considers it more of a duty than an honor to give his time unstintingly to hospital work is Frederick H. Rawson, the Chicago banker who has long been on the board of trustees of the Presbyterian Hospital.

Mr. Rawson's father was a trustee of the hospital from 1885—a year after the opening of the Presbyterian Hospital—until his death in 1906. The present Mr. Rawson is the donor of Rawson Laboratory of the Rush Postgraduate School of Medicine, and in his dedication speech recently said:

"An invitation to become a trustee of a great foundation or university is a mark of distinction and should not be refused without careful consideration and urgent reasons. There is some honor attached to being a director of one of our large corporations, railroads or banks, but far more in being elected to the board of an institution organized and maintained for the advancement of civilization, the alleviation of suffering and the prolongation of life."

* * *

A CORRESPONDENT suggests that considerable impetus may be given the "anti-pistol-toting" campaign if hospitals will give publicity to their statistics regarding gunshot wounds. The number of injuries and deaths caused by the indiscriminate possession and use of firearms in the United States is appalling. In spite of the efforts of the courts and other legal authorities, this menace is rapidly increasing. As yet the public at large is doing little constructive thinking about the matter. Hospitals will perform a genuine service to the community by making known the end results of the promiscuous sale and use of firearms.

* * *

DR. MATHIAS NICOLL, Jr., New York State Commissioner of Health, recently stated that all people may be divided into three classes: The healthy, the sick and those who seem to "enjoy poor health." He says that the first class needs only increasing numbers, the second, sound medical and surgical treatment and study and the third a change of mental attitude toward things in general and themselves in particular.

The truth of Dr. Nicoll's statement is well known to those in hospital work. The third class, like the poor, we have always with us, and it has been facetiously estimated that they are the direct and indirect cause of 63 per cent of the profanity used in hospital work. The mental attitude of the patient has much to do with his recovery, and the cheerfulness or irritability of the hospital personnel is to a large extent reflected by the patient. The therapeutic value of a smile is amazing and will help to eliminate the third class, lessen the second and increase the first.

* * *

WHAT is your hospital doing about physiotherapy? Is it making use of this modern aid to recovery, or is physiotherapy being disregarded on the basis that it is entirely psychological in its action? One of our correspondents writes, "I believe that this department pays bigger dividends in speedy recoveries and amelioration of what would otherwise be disabling deformities than any other department in the hospital. We find that it is reducing the period of hospitalization and that patients who otherwise would leave the hospital with stiff joints are going out with very useful limbs. Many conditions are being improved or cured by its use. This department is under the direction of a physician and we employ only well trained personnel. This expense, however, is amply repaid by the results achieved."

* * *

"HUMANIZING the hospital" seems to be the order of the day. What with more cheerful surroundings, inviting lobbies and other homelike attributes, getting well has become a pleasure for the hospital patient instead of an arduous and tedious task. With the improvement of furnishings comes a more "humanizing" attitude in the personnel, as is so ably expressed by Lena G. Townshend, R.N., U. S. Veterans' Hospital, Aspinwall, Pa., in her article, "The Development of a Pleasant Voice as an Asset," in a recent issue of one of our exchanges:

"Have you ever thought of a pleasant voice as being one of the greatest assets a woman can have no matter what sphere she may enter? If this is true, then to a nurse it is a thing indispensable. When one considers that half the charm of personality lies in the spoken word it is a wonder how few nurses, who take endless pains to please in other ways, ever consider what effect is made by a pretty voice."

* * *

DID you ever stop to think that no one can put your hat on for you in a wholly satisfactory manner? This principle runs through most of the things of life. Other people may demonstrate, they may give advice, they may try to do things for us, but if we want anything done to suit us, we must do it ourselves.

Each hospital is a problem unto itself. In construction, in outfitting, in operation and in maintenance, no two are exactly the same. There can be no standard hospital any more than there can be standard patients and communities. Each hospital must be built, equipped and operated to meet the needs of a given community. There are certain basic general principles that apply to all such institutions but the hospital field is an interesting and useful one because of the manifold variation in its aspects, and isn't it inspiring to realize that each of us is, in his own community, a pioneer in this work?

* * *

IT IS highly proper that schools—if they really are schools—should be concerned with the quality and type of instruction that is being given their students. Schools of nursing are no exception, and because of this, the question of "instructors" or "teachers" in schools of nursing is a very important one and it is pleasing that the subject is now being talked over so generally in the field.

From one of our readers who is prominent in nursing education we receive the following: "In many articles on this subject, emphasis seems to be put on a resident instructor, whereas the real problem would seem to be a qualified instructor. The question of whether an instructor lives in an institution cannot be as important as whether she is adequately prepared to teach. In many schools resident instructors are expected to teach all the subjects in the curriculum; hence Dr. Richard Olding Beard's use of the term 'vaudeville instructor' which is so apt that it has become part of our professional vocabulary. On the other hand, one finds the instructor who is not a resident of any institution but teaches in several. The term 'visiting instructor' is applied to such teachers. Usually they are well prepared, because it is almost impossible for an instructor who is not well prepared to build up a teaching clientele, whereas we all know how often the good name of a hospital or school serves as a cloak to shelter many incompetents. Moreover, 'visiting instructors' are less apt to be 'vaudeville instructors' and are more likely to concentrate on a few subjects and try to teach them well.

"Hence, I submit that schools served by visiting instructors may be better off than those served by resident instructors. The crux of the problem is not where the instructor lives, but whether she knows her subjects, and is able to impart her knowledge."

NEWS OF THE MONTH

SURVEY OF HOSPITAL COSTS FOR INDUSTRIAL PATIENTS

Interesting figures have been disclosed by a survey, jointly conducted by THE MODERN HOSPITAL and *The Nation's Health*, of hospital costs for industrial patients. In making this survey questionnaires were sent to large manufacturers in every part of the country and every industrial center is represented.

Forty-two manufacturers reported, and the cost per day for hospitalized workers ranged from $2 to $7.56. The general average was $3.42½ per day. The New England states averaged lowest, with $3.18 per day, and the district west of Buffalo and including Chicago was the highest, with an average of $3.70. New York State, including New York City, pays $3.42 and manufacturers in the South average $3.38. Thirteen out of the forty-two pay less than $3 for hospital care; seventeen pay less than $4; eight pay less than $5. In cities of more than 100,000 population the average is $3.43. In small "one industry" communities the average is $2.91. Industries maintaining their own hospitals report that it costs them $7.56 per bed per day; $5 per day; $3.22 and "very high—no data."

It would seem from this survey that cost varies (1) with local conditions, (2) with type of hospital patronized, (3) with support or partial support of hospital by industries, (4) with lack of business acumen on part of administration and (5) in rare cases, with the imposition of industry on quasi-charitable institutions.

Figures never tell the whole story. The $2 rate may be sufficient to cover ward service in the poorer type of hospital, or special yearly donations by industry may in reality send the rate up nearer the actual cost. From a "surface" study two things seem certain: First, none of these cases should be considered from the standpoint of charity, no matter what the financial or social status of the workman; second, denominational hospitals, founded primarily for free work, should not figure the rate on the same basis as they do when determining the cost per bed per day. Full salaries for all supervisory executives should be allowed for and figured into the rate. Industries are in no sense free or even part-pay cases.

DEAN EYCLESHYMER ACCIDENTALLY KILLED

Dr. Albert C. Eycleshymer, dean of the University of Illinois School of Medicine, was shot and killed accidentally at his home in Oak Park, Ill., December 30.

Dr. Eycleshymer, who for some time had been in ill health, was at the time of his death on a year's leave of absence from the university. He was formerly connected with the anatomy departments of the University of Chicago and St. Louis University, and since 1913, had been professor and head of the department of anatomy of the University of Illinois, and, since 1917, dean of the medical school.

Dr. Eycleshymer was a member of the National Board of Medical Examiners, the author of publications on anatomy, and winner of the grand prize for work on embryology at the Louisiana Purchase Exposition in 1904. He graduated from the University of Michigan in 1891 and received a Ph.D. from the University of Chicago in 1895, and an honorary M.D. from St. Louis University in 1911.

DR. GOLUB APPOINTED ASSISTANT DIRECTOR AT MOUNT SINAI

Dr. J. J. Golub, medical director, Beth Moses Hospital, Brooklyn, N. Y., has accepted the position of assistant director to Dr. S. S. Goldwater, Mount Sinai Hospital, New York. Dr. Golub, who has been medical director of the Beth Moses Hospital for the past two years, will assume his new duties on the first of March.

After graduating from Boston University School of Medicine in 1915, Dr. Golub was assistant surgeon in the U. S. Public Health Service, being stationed at Boston for three years. Late in 1920 he was appointed a member of the medical commission of the American Joint Distribution Committee and served in eastern Europe until February, 1924.

Dr. E. M. Bluestone, former assistant director, has been appointed head of the Hadassah Medical Organization, in charge of all medical activities in the Holy Land.

Dr. E. M. Bluestone, newly appointed head of the Hadassah Medical Organization.

BEEKMAN STREET HOSPITAL INAUGURATES NEW HEALTH SERVICE

A new health service for those working in the financial and business sections of lower Manhattan is to be inaugurated by the Beekman Street Hospital with the opening of a downtown clinic in the Lord's Court Building at William Street and Exchange Place, New York.

This innovation was included in the report which Howard S. Cullman, president of the hospital, presented at the annual meeting of the directors and members. Mr. Cullman stated that the new clinic, which is to be known as the Beekman Health Service, will be opened late in February and will cater to those of moderate income.

The opening of the new clinic is only part of Beekman Street Hospital's expanding service as a health center for downtown New York and the financial district. Since its organization by a group of downtown business men in 1922, the hospital has more than doubled its capacity in order to meet the needs of this section of the city, and in spite of large sums expended in reconstructing and equipping a new wing, adding three clinics in the outpatient department and making other improvements, the institution begins the year entirely free from debt.

In addition to raising more than $150,000 needed for additional quarters and equipment, a committee headed by William Hamlin Childs and Marshall Field succeeded in also obtaining funds to liquidate mortgages amounting to $215,000.

COMMONWEALTH FUND IS INCREASED

The Commonwealth Fund of New York, established in 1918 by Mrs. Stephen V. Harkness and chartered to carry on work "for the benefit of mankind," has just announced additional gifts from Mrs. Harkness that increase its total endowment to $38,000,000. The annual income, amounting last year to $1,339,000, is expended for a variety of educational, scientific, and humanitarian activities. The Fund has devoted special attention to child welfare work and its demonstration programs for the prevention of juvenile delinquency and for the promotion of child health have until now received the major share of its annual appropriations.

WARD TO PROMOTE CHILD WELFARE

Plans for an incorporation of the Ward Food Products concern, with a potential capitalization of $2,000,000,000, which were recently announced, promise the promotion of the welfare of the American child, according to William B. Ward, who will head the new enterprise. A score of bakeries will merge under the proposed corporation and the profits, after limited dividends on preferred stock have been paid, will be used in building hospitals, recreation grounds and helping established child welfare organizations.

TWO RURAL HOSPITALS WILL BE BUILT

The Commonwealth Fund, a philanthropic foundation with offices at 1 East Fifty-seventh Street, New York, announces an initial appropriation of $350,000 to be expended for the construction of two hospitals in rural communities. This appropriation marks the beginning by the Fund of a new project which will involve the building of two such hospitals a year.

Farmville, Va., has been selected from among more than fifty applications as the location of the first of these hospitals, following a special study by Henry C. Wright, hospital consultant and former deputy commissioner of the New York City Department of Public Welfare. James Gamble Rogers and Henry C. Pelton, Associated, architects, are preparing plans for this first unit.

On March 1 the Fund will establish a division of rural hospitals under the direction of H. J. Southmayd, now hospital consultant to the Cleveland Welfare Federation. The department plans to receive applications from rural communities under certain conditions, chief of which is that the Fund will in the case of approved applications contribute two-thirds of the cost of construction and equipment of the hospital, while the local community must contribute one-third. The community must also meet operating and maintenance costs.

PHILADELPHIA HOSPITALS PLAN MERGER UNDER REORGANIZATION

According to an announcement recently made public, St. Luke's Hospital and the Children's Homeopathic hospitals, Philadelphia, are to merge at the present location of the Children's Homeopathic Hospital, Franklin, Thompson and Eighth streets. A number of new buildings, including a maternity building, an adult building, a dispensary, power house and laundry will be erected adjacent to the present structure and will be ready for occupancy within the next two years.

The new institution will have a capacity of about 350 beds, and will do general hospital work. Until the new construction is completed the present St. Luke's Hospital building will be retained.

In order that all members of the present chief and senior staffs may be afforded regular service, a complete reorganization of the staffs will be effected. The identity of the two hospitals will be retained under the new name.

DR. RUTH WHEELER ACCEPTS VASSAR PROFESSORSHIP

Dr. Ruth Wheeler, professor of nutrition, the State University of Iowa, will leave that institution August 1 to accept the professorship of physiology and nutrition at Vassar College, Poughkeepsie, N. Y. Dr. Wheeler will, in addition to teaching, do research and consultant work in the East. Her successor at Iowa has not as yet been named.

T. B. KIDNER LEAVES TUBERCULOSIS ASSOCIATION

T. B. Kidner, president of the American Occupational Therapy Association, has resigned from his position as institutional secretary of the National Tuberculosis Association and has accepted an appointment as technical adviser to the Industrial Settlement for ex-sanatorium patients that is being developed at Rutland, Mass., by the Central New England Sanatorium Association, under the directorship of Dr. Bayard T. Crane.

This work will occupy about half of Mr. Kidner's time and the balance of it will be devoted to his private practice as an institutional consultant, with especial reference to the planning of medical buildings, for which he will open an office in New York. He will have in association with him in his office Isadore Rosenfield, B.S., M. Arch., a graduate of the College and of the School of Architecture of Harvard University, who has specialized in the planning and equipment of medical buildings. Other specialists in hospital and sanatorium administration will also be associated with Mr. Kidner.

MISS MURRAY, NEWARK, DIES

Almey Constance Murray, for eleven years superintendent of the Presbyterian Hospital, Newark, N. J., died at that institution January 22, as a result of heart and kidney complications. She had been superintendent of the hospital since 1915 and also had charge of the training school for nurses.

Miss Murray was educated at St. Mary's Collegiate Institute, Seaforth College, Toronto General Hospital, and Riverdale Isolation Hospital, Toronto. She took postgraduate work at the Women's Hospital in the State of New York, New York.

Prior to her connection with the Presbyterian Hospital Miss Murray was assistant superintendent at the Riverdale Isolation Hospital, Toronto; served as superintendent of the City Isolation Hospital and City Tuberculosis Sanitarium, Grand Rapids, Mich.; and as superintendent of the Cushing General Hospital, Leavenworth, Kans.

MEDICAL EDUCATION ACTIVITIES EXHIBITED AT CINCINNATI

Under the auspices of the Public Health Federation of Cincinnati and with the cooperation of the Cincinnati Academy of Medicine, the College of Medicine of the University of Cincinnati gave a public exhibition of its activities from February 16 to 22.

The exhibition consisted of static exhibits from the various departments, short educational talks on medical topics and motion pictures illustrating the various phases through which a student of medicine must pass before he can accumulate enough knowledge to be fitted for the practice of his profession. The exhibition which was well attended took a definite step toward convincing the public that medicine and science are indissolubly related.

COLORADO HOSPITAL ASSOCIATION REELECTS HOLDEN

The annual meeting of the Colorado Hospital Association, held in Denver, January 12, was attended by representatives of fifty-six hospitals, sanatoriums and homes as well as sixty-five exhibitors. This record attendance, coupled with the enthusiasm of the delegates, promises an interesting and successful year of development.

The morning session was devoted to inspection of exhibits, demonstrations and the presentation of papers on "Procuring Hospital Personnel, Wage Scale" by Mrs. Oca Cushman, superintendent, Children's Hospital, Denver, and "Cooperative Purchasing," by F. J. Walters, purchasing agent, Colorado General Hospital, Denver.

Dr. G. Walter Holden, Agnes Memorial Sanatorium, Denver, was reelected president and Dr. H. A. Green, Boulder-Colorado Sanatorium, Boulder, was again named first vice president. G. M. Hanner, Beth-El General Hospital, Colorado Springs, was elected second vice president; F. J. Walters, Denver, treasurer, and H. W. Wolcott, St. Luke's Hospital, Denver, executive secretary.

Mrs. Helen Greenamyre, superintendent, Larimer County Hospital, Ft. Collins, read a paper on, "Hospital Charts and Forms," and "Credits and Collections," was the subject of a paper by F. A. Bremner, accountant, St. Luke's Hospital, Denver.

SUGGEST PLANS FOR CELEBRATING HOSPITAL DAY

A meeting of the Chicago members of the National Hospital Day committee of the American Hospital Association was held in the meeting room of the American Medical Association, February 12, Dr. William H. Walsh, executive secretary of the association, presiding as temporary chairman. Plans for furthering this celebration were formulated and suggestions as to the best methods made.

Matthew O. Foley was elected chairman of the Chicago division and Dr. Walsh, secretary. All of the plans of the meeting will be forwarded to C. J. Cummings, Tacoma, Wash., general chairman of the Hospital Day committee. Dr. P. W. Wipperman, superintendent of the Decatur and Macon County Hospital, Decatur, Ill., is the chairman of the Illinois State Hospital Day Committee.

PERSONALITY AND INTEREST NEEDED IN TRAINING SCHOOLS

A greater public interest and the improvement of educational facilities for student nurses were the two main points stressed at the annual meeting of the Central Council for Nursing Education, held February 4, at the Women's Athletic Club, Chicago.

The importance of contact with civic clubs, colleges, and the general public was pointed out by Evelyn Wood, executive secretary of the council, in a paper entitled "Our Educational Program." Mrs. James A. Patten, speaking informally on "A Layman's Viewpoint of Nursing Education," stressed the responsibility of the directress of nurses in selecting student nurses.

Mrs. David W. Graham was elected chairman, Mrs. Perkins B. Bass, first vice chairman, and Mrs. John W. O'Leary, second vice chairman. Mrs. Ernest E. Irons, was reelected secretary and Mrs. Edwin G. Foreman, Jr., was reelected treasurer.

A group of delegates who attended the meeting of the Colorado Hospital Association at Denver.

HEALTH EXAMINATIONS DISCUSSED AT THE CONFERENCE ON HOSPITAL SERVICE

THAT provisions for making periodical physical examinations of people in apparently good health should be made by all hospitals and physicians connected with hospitals was stressed by several of the speakers at the Annual Conference on Hospital Service, held in Chicago, Thursday, February 18, the fourth and closing day of the Annual Congress on Medical Education, Medical Licensure and Hospitals.

Dr. S. S. Goldwater, director, Mount Sinai Hospital, New York, presided as chairman and Dr. Ralph B. Seem, director, Albert Merritt Billings Hospital, Chicago, acted as secretary.

The program was divided into two main subjects, the first being individual versus group responsibility for the care of the hospital patient, and the second the adaptation of medical education to changing clinical practice.

Dr. Henry A. Christain, physician-in-chief, Peter Bent Brigham Hospital, Boston, was the first speaker of the morning. He emphasized the fact that group methods had entered into medical practice, although the individual responsibility still remained. He stated that while group practice had its advantages it also had its disadvantages, but that these disadvantages probably could be overcome by further development of the group idea. "The greatest defect in group practice lies in the feeling of the patient that he has missed a personal interest in himself," he stated, "and that he suspects that he has not quite understood the results of his examination and has only a vague idea of what it is intended that he should do. This is largely because no single individual of the group has spent sufficient time considering him and talking to him as a whole organism needing adjustment." Dr. Christain outlined some of the work that has been done at the Peter Bent Brigham Hospital in group diagnosis and treatment.

Physicians Have Individual Responsibility

Dr. Hugh Auchincloss, visiting surgeon, Presbyterian Hospital, and associate professor of surgery, Columbia University College of Physicians and Surgeons, New York, was the second speaker on the group responsibility subject. He, also, stressed the individual responsibility of examining physicians even under the group system and stated that our hospitals are not places where time hangs heavy, but that the pressure is great and patients are plentiful. Work comparable to mass production must be done, though the individual doctor balks at the idea of handling but one part of the machine.

The first paper on the adaptation of medical education to changing clinical practice was given by Dr. Louis B. Wilson, director, Mayo Foundation of Medical Education and Research, Rochester, Minn. Physical examinations and how to perform them was the basis of Dr. Wilson's speech. He stressed the point that people are more and more realizing the value of periodical health examinations, and that how these shall be conducted is one of the difficult problems that physicians are confronted with. "Two few medical students are graduated with a thorough knowledge of making examinations of well people," he asserted. He pointed out that it is not nearly so difficult to diagnose and treat a disease that has been developed as it is to detect signs of disease in an apparently healthy person. Symptoms usually clearly defined in a sick person may be totally lacking in one who may later be sick. Dr. Wilson said that the hospital is the logical place for the making of physical examinations. He used the simile of taking an automobile to the recognized repair shop or service station for overhauling, and advised people to go to the hospital for their physical examinations where all facilities are to be found.

"Hospitals have a large responsibility in maintaining diagnostic clinics for the well and the possibly sick people," Dr. Wilson stated. Another point that he emphasized was that the type of patients is changing, mostly in occupational diseases, and that many physicians are apt to ignore this change. He stated that the hospital in industrial centers should keep in touch with the conditions of industry in the community and that this is much more a function of hospitals than of medical schools. "Physicians should know home and living conditions of patients before giving them advice for post-treatment after they leave the hospital," he asserted. "They should keep in closer touch with the patients, so that their instructions for home treatment will not be either ridiculous or impossible."

Public Must Be Educated

Dr. Allen O. Whipple, president of the medical board of Presbyterian Hospital and professor of surgery, Columbia University College of Physicians and Surgeons, New York, was the last speaker. He brought out the point that there is a growing appreciation on the part of the public of the importance of modern diagnostic methods. Generalizations are no longer enough for the average patient. He has been educated to expect special and minute information regarding his physical condition.

These papers were discussed by Dr. Willard C. Rappleye, Director of Survey of the Commission on Medical Education, New Haven, Conn.; Dr. Christopher G. Parnall, medical director, Rochester General Hospital, Rochester, N. Y.; Dr. Charles P. Emerson, dean, Indiana University School of Medicine, Indianapolis, and Dr. I. D. Metzger of the Pennsylvania Board of Licensure.

Dr. Rappleye pointed out that schools generally are attempting to teach too much in the four short years allotted to medical education, and that it would be better to confine the education to the basic principles of general practice, plus some of the specialties. He brought out the point that perhaps several physicians in the various specialties would make better physical examinations than simply the one practitioner. He also stated that there is much work to be done in educating the community to proper medical service and that the public has not as yet been "sold" the right kind of medical and health service.

Dr. Emerson called attention to the fact that all of the papers reached the same conclusion on the matter of personal responsibility. He stated that no matter what the equipment or how extensive the facilities, it was still the physician who made the diagnosis. He hastened to assure his audience of his appreciation of present equipment and laboratory facilities in the modern hospital. "Any doctor who has not been trained in the use of the electrocardiograph has no right to practice," Dr. Emerson stated.

The meeting of the American Conference was well attended by hospital superintendents, deans of medical colleges, directors of teaching hospitals and others. Many of the most prominent men in the hospital field were present.

DR. CHRISTIAN ADVISES INTERNS ON SELECTION OF HOSPITALS FOR TRAINING

THE Annual Congress on Medical Education, Medical Licensure and Hospital Service held in Chicago, February 15-18, devoted one of its sessions to a consideration of the work of the hospital intern.

Dr. John M. Dodson, director of the bureau of health and public instruction of the American Medical Association, took up particularly the opportunity for research in the hospital. Dr. H. A. Christian, Hersey professor of the theory and practice of physics, Harvard Medical School, spoke on the selection of a hospital for intern training. "No hospital in which patients do not receive excellent professional and institutional service," said Dr. Christian, "is acceptable for an internship. The intern should learn how to apply to the individual patient the more theoretical knowledge acquired in the medical school and should perfect himself in the methods of both diagnosis and treatment, while acquiring that art which we may call the understanding of the human relationships of patients.

"There must be in the hospital patients in sufficient numbers to keep the intern occupied, and yet not so many that he has insufficient time to study with care each patient. The diseases of the patients must be varied. Dr. Christian pleaded particularly for an intern service of not less than eighteen months in length as being adequate to give the young graduate in medicine opportunity for a full practical education. He emphasized also the necessity of having a staff in the hospital able to give proper instruction."

Dr. Christian said in part: "In recent years there has been an increased insistence on an internship in a hospital subsequent to the completion of the course in the medical school, as a prerequisite to the practice of medicine in any form. With this requirement in view what ways and means has the senior student for the selection of a hospital internship satisfactory to his needs? In the first place it must be recognized that a hospital may be entirely adequate for its work in the efficient care of its patients and yet be quite unsuited for an internship that is to complete the medical school education of the student. In other words, a hospital can perfectly well be a class A institution as a hospital for the care of patients and at the same time be about class D for an educational internship. However, no hospital below class A can be considered a satisfactory place for an internship.

More Autopsies Needed

"Looking about for any other criteria, it has seemed to me that the number of autopsies obtained on patients who die in the hospital is perhaps the best single index of the professional efficiency of the hospital, of the amount of work devoted to the study of patients by members of the staff, of the eagerness of the staff to learn and of the teaching abilities of the staff. In my opinion the physician who has studied the patient conscientiously and has watched the progress of his disease from day to day, who has discussed the disease and its manifestations in the patient with his interns and who is sincerely desirous of learning more of medicine, is the physician who makes every effort to secure permission for an autopsy in all fatal cases, and who is keenly interested in what is revealed.

"Any general hospital having more than fifty deaths per annum, in which the percentage of autopsies was 25 per cent or more of the number of deaths might be regarded as a desirable place for an internship.

"Some hospitals pay interns a stipend. This should arouse in the minds of prospective interns a strong suspicion of the inadequacy in educational value of the internship. I do not mean by this that there is anything reprehensible in payments to interns, but knowing as I do the efforts at economy required on the part of all hospitals, I realize that they do not pay salaries for service that can be obtained without salary and that payment of a salary is an indication that they do not offer enough educational value in their internship to attract interns and so they must add a monetary attraction in order to get them."

Dr. Ernest E. Irons, dean of Rush Medical College of the University of Chicago, continued the discussion with an address on the purpose of the hospital internship. Briefly, he said: "A hospital internship should develop the student's character through close daily contact with attending men of high ideals. He should see how honesty, sincerity and sympathy are combined with knowledge and experience in dealing with the problems of each patient.

"The days when hospitals exploited their interns by exacting services that should be performed by orderlies are largely past, but there still remain in many of our better hospitals certain uncorrected errors, such as the overloading of interns with an enormous mass of routine laboratory examinations, or the assignment of one intern to so many attending men that he has insufficient time to study and examine his patients.

"The intern is an important part of the great cooperative enterprise of the modern hospital. He will work faithfully and grow in professional stature if he is easily led to enter into that spirit of friendly cooperation between attending staff, nurses, administration and patients that characterizes the well ordered progressive hospital."

Dr. Arthur Dean Bevan, professor of surgery, Rush Medical College, acted as chairman of the meetings, which were attended by about three hundred medical educators from all parts of the country. Many superintendents of teaching hospitals were present.

Much interest was shown in the informal outline presented by Dr. Willard C. Rappleye, Director of Survey of the Commission on Medical Education, New Haven, Conn.

The last session was given over to the American Conference on Hospital Service, the story of which appears on page 267.

TORONTO WESTERN AND GRACE HOSPITALS UNITE

The Toronto Western Hospital, a 253-bed institution and the Grace Hospital, a 128-bed general hospital, Toronto, are planning to merge, according to recent announcement. For considerable time the boards of the two hospitals have met together and have worked in cooperation with a view toward amalgamation.

The hospitals have united principally to lower overhead costs and thereby to increase operating efficiency. Through the merger it is hoped soon to begin the building of a new 600-bed pavilion at a cost of between a half and three-quarters of a million dollars on the site of the Toronto Western Hospital which has an area of over five acres.

METHODIST HOSPITAL WORKERS DISCUSS MUTUAL PROBLEMS

The contribution of mechanical science to hospital service, the need of a magnanimous nature in nursing and the linking of the hospital to the community were the topics prominently featured at the eighth annual meeting of the National Methodist Hospitals and Homes Association, held in conjunction with the Methodist Deaconess Association and the National Deaconess Convention for the first time in the history of Methodism, February 16-18, at the Edgewater Beach Hotel, Chicago.

In order to allow the separate organizations to hold distinct meetings, the opening sessions each day were devoted to general assemblies after which the group meetings turned their attention to individual problems.

One of the outstanding papers of the entire meeting was "The Contribution of Mechanical Science to Hospital Service," given by Guy M. Hanner, Beth-El Hospital, Colorado Springs, Colo. Beginning with the inception of hospital service on this continent in 1527 when the Jesus of Nazareth Hospital was founded in Mexico City, and tracing improvements in operation through mechanical inventions, Mr. Hanner stressed the decided advancement made during recent years.

By following the typical experience of a patient through the hospital, Mr. Hanner pointed out the development of each service in the institution, including x-ray, operating room, nursing, administrative, ambulatory, laboratory, dietary and housekeeping. Each phase of these services, as well as the latest inventions and newest methods of operation, was touched upon in his description of a thoroughly modern hospital.

In the discussion that followed this paper it was pointed out that a new hospital is practically out of date upon being placed in operation, since mechanical science is making such great strides that the period from the time the plans are accepted until the hospital is completed sees many developments in appliances and safeguards that were unthought of when the institution was first planned.

Nursing Demands Self-Sacrifice

Dr. Frank C. English, St. Luke's Hospital, Cleveland, Ohio, in his paper, "The Importance of Leadership in the Development and Operation of Methodist Hospitals and Homes," put forward an idea for more closely associating the community with the hospital so that the hospital might finish the year without the usual deficit. He stressed the need of the administrators taking the lead in guiding the operations of the hospital in every phase of activity.

At the banquet held at the hotel on the evening of the first day, over which Bishop Thomas Nicholson, Detroit, Mich., presided, Bishop Wilbur P. Thirkield, Chattanooga, Tenn., compared the work and service of the modern hospital to that of the Good Samaritan.

A symposium, "Ideals of Nursing," linked discipline with sacrifice in striving to reach the ideal. Minnie L. Draher, supervisor of nurses, Bethesda Hospital, Cincinnati, Ohio, showed the importance of sacrificing self for the common good in her paper, "Sacrificial Nursing." This idea was further advanced by Bertha L. Knapp, Wesley Memorial Hospital, Chicago, who spoke on "Discipline in Methodist Schools of Nursing."

The convention was entertained by the glee club of the Chaddock Boys School, Quincy, Ill., which offered several solo and group numbers, and by students of the Jennings Seminary, Aurora, Ill., who presented a pageant, "The Samaritan of the White Cross," at the general assemblies on the second day of the convention.

Blanche Fuller, superintendent, Nebraska Methodist Hospital, Omaha, Neb., was named chairman of the nominating committee, with the Rev. J. B. Jones, Children's Hospital, Worthington, Okla.; Dr. J. A. Motter, Bethany Methodist Hospital, Kansas City, Kans.; Dr. W. M. Puffer, Kalamazoo, Mich., and Frances Knight, Detroit, as members. The findings committee was composed of Dr. C. L. Strecker, Old People's Home, Cincinnati, chairman; Alice Thatcher, Christ's Hospital, Cincinnati; and Dr. E. E. Hosman, Omaha, Neb.

Dr. U. S. Brown, Home for the Aged, Topeka, Kans., was named chairman of the resolutions committee, with Dr. John Black, St. Luke's Hospital, Cleveland, and Roxana Beck, Helena, Mont., as members.

The following officers were elected for the coming year: The Rev. Dr. W. H. Jordan, Asbury Hospital, Minneapolis, Minn., president; Dr. U. S. Brown, first vice-president; J. A. Diekmann, Cincinnati, second vice-president; Joseph L. Miller, superintendent, Methodist Hospital, Peoria, Ill., third vice-president; Dr. G. T. Notson, superintendent, Methodist Hospital, Sioux City, Iowa, secretary; and Blanche Fuller, treasurer.

HOSPITAL TO SUE FOR BACK DEBTS

Acting under instructions from the board of supervisors, the district attorney of Suskiyou County, Cal., is preparing suits by which the county will attempt to collect overdue bills owing the Suskiyou County Hospital, amounting to several thousand dollars. Some of the bills are for small amounts while others run into hundreds of dollars, according to Dr. Charles Pius, superintendent.

PASSAVANT HOSPITAL, CHICAGO, BEGINS DRIVE

Final plans for a campaign to raise $1,500,000 to erect the new home of the Passavant Memorial Hospital on the new McKinlock campus of Northwestern University on the lake front near Chicago Avenue, Chicago, have been completed and the drive will commence early next month. The site on the campus was given the hospital by the university for a period of ninety-nine years, and one-third of the beds of the new institution will be set aside for Northwestern University Medical School for clinical instruction.

These plans will in no way conflict with the planned affiliation of Northwestern University and Wesley Memorial Hospital, according to George W. Dixon, president of the board of trustees of the latter institution.

UNIVERSITY OF CHICAGO OFFERS SUMMER COURSES TO GRADUATE NURSES

The University of Chicago will again offer, during the summer quarter, 1926, courses for graduate nurses similar to those given in 1925. They will comprise three courses in nursing administration and teaching under the direction of Anna D. Wolf, superintendent of nurses, Albert Billings Memorial Hospital, University of Chicago, and two courses in public health nursing under the direction of Helen F. Boyd, formerly in charge of public health nursing, University of Iowa.

Correspondence in regard to these courses should be addressed as follows: Concerning admissions, to the University Examiner; concerning rooms and housing accommodations, to the University Cashier, and for other information, General Correspondence Bureau, University of Chicago.

THE OPEN FORUM

Thoughts, opinions and criticisms are invited for these pages from readers in all departments of hospitals and related services. Please address letters and other communications to the Editor, THE OPEN FORUM.

HOSPITALIZATION OF PNEUMONIA CASES

ALL readers of THE MODERN HOSPITAL will recall the article "The Hospitalization of Pneumonia Cases (Report of the Chicago Pneumonia Commission)," by C. C. Pierce, M.D., senior surgeon of the U. S. Public Health Service, District No. 3, in the December, 1925, issue of this magazine.

The subject is of live interest to all hospital superintendents and members of medical staffs. The publication of Dr. Pierce's article has called forth so much discussion that the editors have decided it is advisable to present the following comments:

JOSEPH L. MILLER, M.D., Clinical Professor of Medicine,
Rush Medical College, Chicago:

"I have read your very interesting report on the hospitalization of pneumonia cases. I think that the question of hospitalization depends very largely on the home facilities of the patient—a suitable room and the financial backing to get proper nursing and medical attention. For patients with pneumonia who can be given a suitable room where a nurse can be obtained and proper medical treatment given, I believe the home treatment is much more desirable, as the hospital rooms are not as sunny or as well ventilated.

"To those who cannot command these facilities, hospitalization becomes very desirable. Figures on the mortality in hospitals and in private practice are practically of no value. It is recognized that the milder cases are not sent to the hospital and the severe cases are sent often very late, only when they have reached the point where nursing care is necessary and the people are unable to employ a nurse.

"In regard to the isolation of these patients, I think this is a question requiring very careful attention. The sanitarians often look upon it only from their standpoint and fail to realize the economic or treatment side of the condition. Our present rules in regard to typhoid are such that it will cost a patient at least $125 a week to go to the hospital and carry out the demands of the health department. It means a private room and the patient taken care of entirely by special nurses. The floor nurse cannot help so that this means employment of special nurses in addition to private room. As a result of this, it means that the unmarried working man or woman who is rooming, practically has to go to the county hospital in order to be taken care of in a manner within his means.

"In regard to pneumonia, this question of requiring a sheet between the beds of pneumonia patients in order to protect one pneumonia patient from a possible infection of another type of pneumococcus in an adjacent bed is, I think, a purely hypothetical thing. I know how it originated, and I particularly opposed it when the rule was issued in the army, for this reason: One of the essential things in the treatment of pneumonia is to have a current of air blow over the patient so as to carry away the expired air before the patient has had a chance to reinspire it. This is practically impossible in the average pneumonia ward and is certainly impossible in a pneumonia ward at the county hospital if a sheet is put between each bed. This space must be left open to allow air to blow across the patients' beds in order to get the best results from the fresh air treatment. I think that when the patient is in a ward, as required by our present pneumonia regulations here, there should be a sheet between him and the adjacent patient (in case the patient is not a pneumonia patient). I think our present regulations in regard to pneumonia are entirely satisfactory.

"When thinking of this question, we must always consider the economic and the treatment as well as the sanitary aspect of the situation—something that has not always been done in the past by people interested solely in preventive medicine."

JOSEPH C. DOANE, M.D., Medical Director and Superintendent,
Philadelphia General Hospital, Philadelphia:

"Relative to the need for unusual precautions on the part of the hospital in so far as the isolation of its pneumonia patients is concerned, there appears to be no great divergence of opinion on the part of the medical profession as to the active infectiousness of lobar pneumonia; nor is there lack of experience on the part of the hospital executives and physicians as to the transmission of lobar pneumonia from one patient to another undergoing treatment in the hospital.

"There is no question in my mind but that we owe it to our patients to furnish some degree of isolation for every case of lobar pneumonia. This may be a cubicle system, composed of curtains, metal or glass partitions, or it may consist merely in separating the patient by ward screens.

"Along with the need for some degree of isolation should go such arrangements as are necessary to carry out the so-called aseptic technique. These provisions should consist of a separate basin and antiseptics for hand washing, paper towels (which may be destroyed), gowns for physician and nurses, separate dishes, etc. A utensil sterilizer is a most important piece of apparatus for use in the pneumonia ward."

HENRY A. CHRISTIAN, M.D., Physician-in-Chief, Peter Bent Brigham Hospital, Boston:

"My opinion of each recommendation, as indicated by the numbers referring to the number of the recommendation in the article, is as follows:

"1. Except during epidemic of influenza, entirely unnecessary.

"2. No such rigid requirements needed. For twenty-five years I have spent not less than half of each day in medical work in a hospital and I have never seen any evidence of pneumonia being conveyed from a patient with the disease to another patient, an attendant, nurse or doctor, with the possible exception of the period of the late influenza epidemic. Even then it seemed to us that the safest place from the point of view of contracting the disease was in the wards in contact with patients sick with influenza and the most dangerous place was outside of the institution in contact, so far as one knew, with well people.

"3. Not practical and probably not necessary.

"4. Desirable.

"5. Not necessary.

"6. Not necessary. I have never observed any occurrence to make me consider it even desirable.

"7. Not necessary; latter part impractical and probably of no real utility.

"8. Agree entirely with first part; second part probably a wise precaution and easily carried out.

"9. Interesting, probably of little practical value, but if conditions develop as indicated under (9) these isolation precautions seem desirable but this must be a rare happening in hospitals."

FRANCIS G. BLAKE, M.D., Professor of Medicine, The School of Medicine, Yale University, New Haven:

"For the past seven years it has been our practice at the New Haven Hospital to admit pneumonia patients only to the isolation pavilion where all our contagious diseases are cared for.

"Every patient is handled on the unit isolation system with individual dishes, thermometers and bedpans, and those who come in contact with these patients—nurses, interns, and visiting physicians—are required to scrub up and put on a clean gown before seeing the patient, and discard the gown and again scrub up after seeing the patient. The pneumonia patients are handled in the same wards as the patients with typhoid fever, dysentery, scarlet fever and measles.

"During the last five years while I have been here, there has not been, to my knowledge, a single case of hospital contact infection, as far as pneumonia is concerned. We have felt that it is particularly desirable that all pneumonia patients and other respiratory infections be excluded from our general wards in order that patients with chronic heart disease, nephritis, diabetes, etc., be protected from contact with respiratory disease.

"With respect to the question whether it is more desirable to hospitalize pneumonia patients or treat them

Recommendations of Chicago Pneumonia Commission

Based upon its findings the commission has made the following recommendations in regard to the hospitalization and institutional care of patients suffering from acute respiratory diseases:

(1) The visiting of persons suffering from pneumonia who are under treatment in hospitals or other similar institutions should be prohibited except in cases of actual emergency.

(2) Cases of pneumonia should not be treated in a general ward of a hospital, except that, when no other adequate care of such cases is feasible they may be treated in cubicles in wards, with properly instructed attendant and special disinfecting facilities, including proper solutions, kept close at hand; and bedpan, dishes, thermometers, towels and hands are properly washed and disinfected, and the nose, throat and mouth discharges of the patient are destroyed.

(3) Where there are several cases of pneumonia in the same hospital ward, cases due to different types of pneumococci or streptococci should not be placed in adjoining beds.

(4) Cases of pneumonia under treatment in hospitals should not occupy beds within ten feet of or otherwise be in close contact with persons awaiting operation or recently operated upon; with persons hospitalized for heart disease; with persons having Bright's disease; rickets; various forms of contagious diseases which might be complicated by pneumonia; severe burns or injuries, or other conditions that lower the resistance to pneumonia.

(5) The disinfection of nose, throat and bronchial secretions and of objects soiled by such secretions should continue after the patient's temperature returns to normal and so long as such discharges are present. The skin of the mouth, nose, cheeks, and hands of the patients and attendants should be frequently washed.

(6) Persons convalescing after pneumonia should not be allowed to visit or be visited by other patients, nor to expose unduly those convalescing from other diseases.

(7) The period of isolation should continue during the course of the pneumonia, and until non-infectivity has been determined by bacteriologic means.

(8) Patients with acute coryza, sore throat or bronchitis should not be operated upon under general anesthesia except in cases of emergency; nor should persons so affected participate in operations.

After each operation and before the next operation the anesthetic face mask, etc., should be properly sterilized.

(9) Whenever pneumonia develops to an exceptional degree in any hospital or institution, all persons in contact with the patients should be cultured for pneumococci and nearly related organisms, and when such organisms are found they should be "typed."

at home, I think there is no complete answer to this question which is applicable to all patients. I am in complete agreement with the statement in Report No. 1 concerning the hospitalization of pneumonia cases. I think it is fairly obvious that hospital case fatality rates will be unavoidably higher than home rates so long as the pneumonia patients admitted to hospitals are limited to the groups now sent to hospitals. It has always seemed to me that one important point to stress in advocating the hospitalization of patients with pneumonia, is the sending of the patient to the hospital as early as possible in the course of the disease, rather than waiting until he has become desperately ill when the transferring may be a hazardous procedure. To put this idea across will undoubtedly require a good deal of effort."

CAMPBELL P. HOWARD, M.D., Chief of Medical Service, Montreal General Hospital, Montreal:

"It certainly would be wise if every general hospital had a small ward for the care of the pneumonia cases, in which they would be isolated from the medical and surgical cases. Many of the larger institutions have such a ward and I consider that in the planning of any hospital plant, such facilities should be afforded. In the meantime, we must make the best of it, and provided the cases are properly nursed there seems to me but little risk in treating a pneumonia case in a general medical ward. So far, since my return to Montreal in September, 1924, I do not recall a single case of ward infection in my service. Naturally in the event of a return of an epidemic such as we had in 1918, it would be necessary to carry out the stringent regulations advised by Dr. Pierce."

WALTER E. LIST, M.D., Superintendent, Minneapolis General Hospital, Minneapolis, Minn.:

"In my opinion the pneumonia patient who has a good home and can afford to have two trained nurses in attendance can receive excellent service in the home. People who live in lodging houses or in the poorer homes where there is no possibility of sufficient medical service and no possibility of good nursing, are much better off in a well-equipped hospital.

"The reason that the hospital cases of pneumonia show such a high mortality is, in my opinion, due to the fact that only the most serious cases are sent to the hospitals and are usually sent there when it is seen that they are not doing well. If these cases were sent to the hospital immediately, the hospital statistics would be better than they are, and if all cases of pneumonia were sent to the hospital I am sure that the pneumonia statistics of hospitals would be better than those of home-treated cases.

"The only problem, it seems to me, is whether the case that has a fairly good home and can have sufficient medical attendance but not good nursing care is better off in the hospital than at home.

"Each case under these circumstances must be considered individually, and the home conditions must be weighed against the dangers of transportation.

"Certainly the modern hospital is better equipped to detect the complications of pneumonia than the homes of even the richest persons. As far as the large city hospitals are concerned, I think I should always advise hospitalization of pneumonia cases early.

"As to the problem of whether pneumonia is a truly contagious disease or not, I think that the existing data are altogether insufficient to solve the problem. We have apparently at present a new pneumococcus toxin from which it may be possible to classify the immunity of the general public. This will aid in solving the problem of the contagiousness of pneumonia, but it is a well known fact that one-third of the public harbor pneumococci in the nasopharynx and mouth. Under these circumstances it is not necessary to assume contact for the introduction of pneumomocci into the nasopharynx and mouth. I feel that there is no good evidence for an outspoken contagiousness of pneumonia.

"In the large hospitals I am in favor of setting aside large, airy wards for exclusive use of pneumonia patients during the pneumonia season. The beds should have cubicles around them and the nurses should be well trained in avoiding carrying infection from one bed to the other.

"Conclusion: Home care of pneumonia cases versus hospital care—all the evidence points in favor of hospital care."

THOMAS McCRAE, M.D., Professor of Medicine, Jefferson Medical College, Philadelphia:

"Relative to the question of the disposal of pneumonia patients in general hospitals, it is impossible to answer the question with any certainty as long as we know so little as to the factors in infection with the pneumococcus and the method of transmission. In the case of typhoid fever acquired in the wards of a hospital the problem is comparatively simple, but as we all carry pneumococci in our mouths and air passages, it is difficult to say how often infection occurs from our own organisms and how often from outside. So far as my observations have gone, proved cases of infection from one patient to another in a hospital are extremely rare. In saying this, I am familiar with the curious cases of several successive patients in one bed developing pneumonia.

"I cannot recall an instance of a physician, nurse, or orderly acquiring pneumonia from contact with patients. A number of instances of terminal pneumonia appear in the wards, generally in patients with chronic disease. These are usually of the broncho-pneumonia form, but I do not think there is any particular difference in their occurrence whether ordinary lobar pneumococci patients are in the ward or not.

"The comparison of mortality rates of patients treated in their homes or in hospitals does not seem to prove anything or to be of particular importance. We all know the way in which patients who are desperately ill are brought to hospitals, and many patients who have been neglected for several days are also brought in. It would be surprising if the hospital mortality were not high."

C. W. MUNGER, M.D., Director, Grasslands Hospital, Valhalla, N. Y.:

"I have talked to some of our clinicians regarding the report of the Chicago Pneumonia Commission and the consensus of opinion is that the recommendations are essentially sound. We believe that pneumonia cases should be handled with essentially the same precautions as are used against the spread of other contagious diseases. It has not been possible in our hospital to send pneumonia cases to the isolation ward for the reason that that ward is not large enough. They have, accordingly, been handled in the open ward, excepting that screens have been used between beds to prevent the spread of infectious droplets. As soon as we are able to do so, however, we expect to provide definite isolation for these cases.

"I question somewhat the advisability of developing pneumonia wards entirely separate from the other wards. Since by far the greater number of cases come during the

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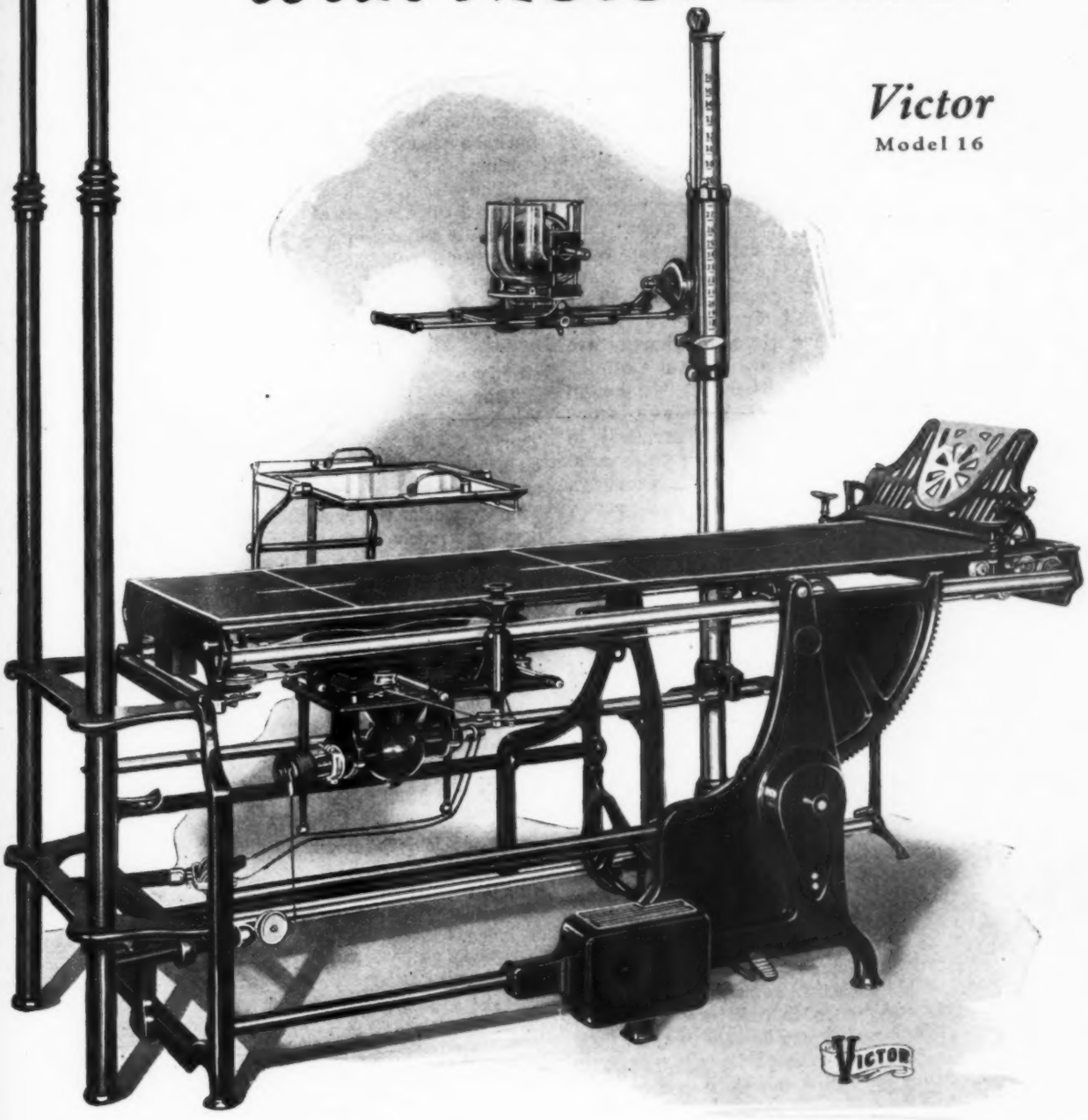

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winter, this ward would be little used for approximately nine months of the year. With wards properly arranged, it is possible to admit visitors even in the case of contagious diseases, provided the visitors remain properly segregated. I see no reason for further exclusion of visitors for pneumonia if the above mentioned facilities exist.

"I feel that this report is both timely and helpful. Its publication has, without doubt, awakened many hospitals and physicians to laxity in their own methods of caring for pneumonia patients."

McKIM MARRIOTT, M.D., Physician-in-Chief, St. Louis Children's Hospital, St. Louis:

"I have read with interest the article on Hospitalization of Pneumonia Cases: Chicago Pneumonia Commission." In general, I approve heartily of the recommendations as to the handling of pneumonia patients in hospitals, and I think the recommendations are of especial value in the case of children's hospitals.

"It is our practice to isolate pneumonia patients either in cubicles or in side rooms until convalescence is definitely established. The nose and throat discharges are destroyed and disinfecting facilities are made use of.

"I do not think it practical to determine the non-infectivity of patients suffering from pneumonia by means of bacteriological examinations; nor is it practical to prohibit all visiting of patients suffering from pneumonia. Visiting, with proper precautions, might well be allowed. Persons convalescing after pneumonia should, however, not be allowed to visit other patients."

F. G. CARTER, M.D., Superintendent, Ancker Hospital, St. Paul, Minn.:

"I have read with considerable interest the report of the Chicago Pneumonia Commission, relative to the hospitalization of pneumonia cases, as published in the December issue of THE MODERN HOSPITAL.

"Our experience with acute respiratory diseases in this hospital leads us to believe that some of the recommendations of the commission may be a little stringent; many of them, however, are in strict accord with our present day practice, although in many instances factors other than those of epidemiological interest have been our chief guides in the formulation of such practice.

"It is our opinion that the interests of pneumonia patients will be best served by placing them in single rooms, when possible, in a quiet well ventilated environment. We do not believe, however, that, under ordinary conditions, strict isolation, such as is maintained in dealing with scarlet fever, diphtheria and measles, is necessary.

"It has been our experience that in most cases of pneumonia an actual emergency can be said to exist from the beginning. We consider these patients 'dangerously ill' until convalescence is well established and allow a limited number of visitors to such patients. Many years of this practice have failed to reveal untoward effects so far as either the visitors or patients are concerned."

WILEY E. WOODBURY, M.D., Director, The Fifth Avenue Hospital, New York:

"Relative to the recommendations of the Chicago Pneumonia Commission, in our opinion, pneumonia cases should be transferred to the hospital when possible.

"Our records show that a great many cases are sent into the hospital only after they have become desperately ill and it is obvious that the transfer from the home to the hospital will in no way aid recovery. This delay in sending the case to the hospital is due to one of two things, either the condition is unrecognized, or when recognized, the family are of the opinion that the home treatment will be all that is necessary."

NELLIS B. FOSTER, M.D., Associate Attending Physician, The New York Hospital, New York:

"The question of communicability of pneumonia is one that has excited attention for a number of years and was given intensive study during the last war. Two points of view are possible.

"The purely theoretical point of view, almost never held by internists, is that since pneumonia is an infectious disease, and the organism is harbored in the sputum, it must be communicable from one individual to another by sputum.

"The second point of view, usually held by internists, is based upon practical experience that lobar pneumonia is a rare disease to develop in medical wards.

"In reference to the theoretical point of view common among epidemiologists, it is usually forgotten that the majority of individuals harbor pneumococcus, type 4, in the sputum. The question is, why do so few individuals develop pneumonia since they carry the infection constantly with them?

"Our experience in this hospital for a number of years has been that type 4 pneumonia is the most common type. Types 1 and 2 are relatively uncommon. It has frequently been advised that at least in surgical wards the use of cubicles, if not complete isolation, is desirable. This overlooks the fact that post-operative pneumonia is usually broncho pneumonia, and is commonly type 4. Practically, I found that the most rigid isolation in army hospitals was entirely without effect in diminishing the instances of post-operative pneumonia.

"It would hardly be feasible to carry out the isolation of pneumonia patients in a large general hospital, since rigid isolation in the sense that diphtheria and scarlet fever are isolated, would require separate rooms and separate nurses. Any other type of isolation is a form of self-deception."

LOUIS R. CURTIS, Superintendent, St. Luke's Hospital, Chicago:

"It has long been our custom so to place pneumonia patients as to avoid contact with any other patients, and nearly all precautions are taken to prevent the disease being transmitted to others. Visitors are not as a rule excluded.

"There are some differences in the opinions of the members of the medical board as to the degree of danger, and we take the safe side."

ASA S. BACON, Superintendent, Presbyterian Hospital, Chicago:

"Referring to the article written by Dr. C. C. Pierce in regard to hospitalization of pneumonia patients, I wish to say that, a great many years ago, we recognized pneumonia as a communicable disease, and since that time we have treated pneumonia patients as we do contagious disease cases. That is to say, we put the patient in a private room and take all the precautions that we take with any contagious case. Also, when any ward patient has a bad cold, we put a screen around the bed."

Other expressions of opinion on this subject will appear in The Open Forum, April issue.

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THE CRUSADE AGAINST CANCER*

By Nan H. Ewing, R.N., Principal, Nurses' Training School, Ravenswood Hospital, Chicago

THE history of the Cancer Hospital of London is of the most absorbing human interest. Fourscore years ago London, the city of hospitals, had no accommodations for the cancerous poor. A true humanitarian and physician, William Marsden, returning home late one night from St. Bartholomew's Hospital, found a woman dying of cancer in one of the small streets of Holborn. Dr. Marsden immediately attempted to place the unfortunate woman in a hospital, but she was refused admission for lack of a letter of recommendation. Her earthly misery ended the next day; but the pathos of the incident and the apparent hopelessness of such cases so deeply impressed Dr. Marsden that he appealed for funds and allies for a hospital for certain malignant diseases.

His ideal of service for this most necessary hospital was that patients be required to possess only two qualifications—the disease and poverty.

Tragedy stalked again in the annals of this hospital. Dr. Marsden's wife was later stricken with cancer and, in spite of every human aid, suffered such untold agonies that again the husband, though distracted by his wife's sufferings, had a thought for the lot of the poor—the unfortunates who had none of the resources that were at his command.

The first movement resulted in the establishment of an out-patient department, and shortly there was opened a hospital home. This was the nucleus of the present hospital, the only one devoted to the treatment of cancer in this city of seven million population and in a country where thirty thousand persons die of cancer each year.

In England one is frequently impressed with the apparent ease of securing hospital treatment, and such an institution as the Cancer Hospital, which is entirely free and which is supported by voluntary contributions, can hardly be looked upon as less than a godsend by those needing its care.

The exterior of the hospital is very pleasing. The site is in an interesting part of London on Fulham Road, a well known location to taxi drivers and busmen in remote sections of London.

American visitors to the hospital who had the pleasure of meeting J. Courtney Buchanan at the 1924 American Hospital Association convention in Buffalo, will feel quite at home as soon as they pass inside its doors, for the courtesy and hospitality of the institution find happy expression through the genial secretary who took such an

*The writer begs to acknowledge her indebtedness to Lord Northbrook's report and to J. Courtney Buchanan, secretary, The Cancer Hospital, London, for the historical and statistical facts given here.

The Cancer Hospital, London

Adv. page 52

CHILDREN never have to be coaxed to eat Jell-O. Its color, sparkle and nice fruity flavor is irresistible to them, especially when illness dulls the appetite. Jell-O is most excellent for children, being light, wholesome and easily digested by the delicate constitution.

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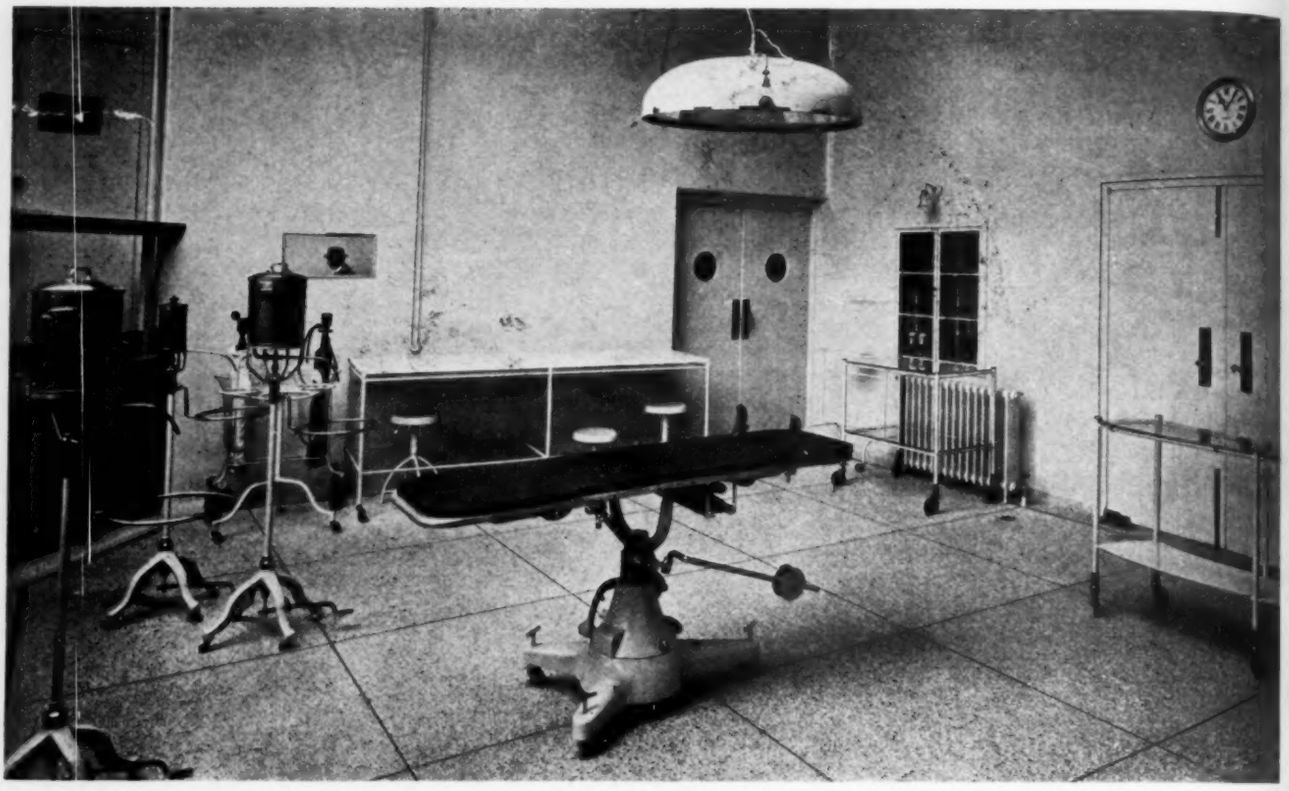

One of the large operating rooms

active part in the affairs of the Buffalo conference.

One is immediately impressed by the hospital's immaculate cleanliness and freedom from odors. It would be natural, perhaps, to think in melancholy terms of a hospital devoted to the care of patients with malignant growths. A physician acquainted with the work being done by scientists in the study of this disease can be optimistic, but we can hardly expect the stricken to have much hope in view of the general attitude of fear and despair that has always attended the mention of cancer. When we entered the bright, spotless wards, unhappy thoughts fled and we wondered if we were seeing a typical unit. It reminded us more of a convalescent ward in a general hospital. Flowers are gracefully arranged on a long table in the center of the room—a custom that many nurses would heartily endorse. Perfect disinfection and isolation are practiced.

The operating suite, which has been completed since the secretary's return from the States, is vastly superior to any other operating suites either in England or France. The unit is ideally complete. There are two exceptionally large operating rooms, an x-ray room, sterilizing room, surgeon's room, supply room, and special laboratories. One attractive feature that nurses would enthusiastically approve is a room for nurses, not just a bare four walls with a few pegs and a mirror, but a cozy, homelike sitting room with every comfort.

The "theater sister" (head surgical nurse) has a charming little abode of her own that one instantly forgets is a part of an operating unit, because it is so restful and detached.

Some of the features of this notable operating suite are its marble-topped tables, comfortable and easily accessible observation stands, water-cooled roofs, lighting systems, side wall heating, ventilation, observers' guest room and, last but not least, the roominess of the place.

The research department occupies a large building, and one rarely sees a more completely equipped department. The biological section is distinguished by its size and equipment. The operating suite for animals is a department in itself. There is a mammoth library of cancer literature and a physics laboratory with a full-time physicist.

The electrotherapeutic and x-ray departments are elaborately equipped, and doubtless in time will present many important results from their increasingly active research. The radiographic heart tracing method that is receiving much attention in England at present, is one of the chief interests of Dr. Knox of the medical staff. The highest development of treatment by x-ray, high frequency currents, galvanism, faradism, and ionic medication is seen.

The out-patient service, the route by which all cases are admitted to the hospital, is particularly active, having treated 17,942 patients during 1924.

The capacity of the hospital is considered 90, though there were 126 patients on the day of this visit. The hospital has a close affiliation with the ministry of health, each organization aiding the other in the collection and dissemination of cancer facts and statistics.

The medical instruction on this important subject is given in two groups; first, to the qualified medical probationer or postgraduate and second, to the medical students from the London schools.

It was somewhat surprising to learn that the hospital maintains a school for nurses. The training is over a four-year period, two years of which are spent in the Cancer Hospital and two years in Guy's Hospital.

The nurses' home has a new addition, which is very comfortable, well designed, and thoroughly modern. The nurses have the use of the tennis courts in the garden, a most pleasing and useful feature for this type of hospital particularly.

The chapel (Church of England) is an imposing part of the hospital.

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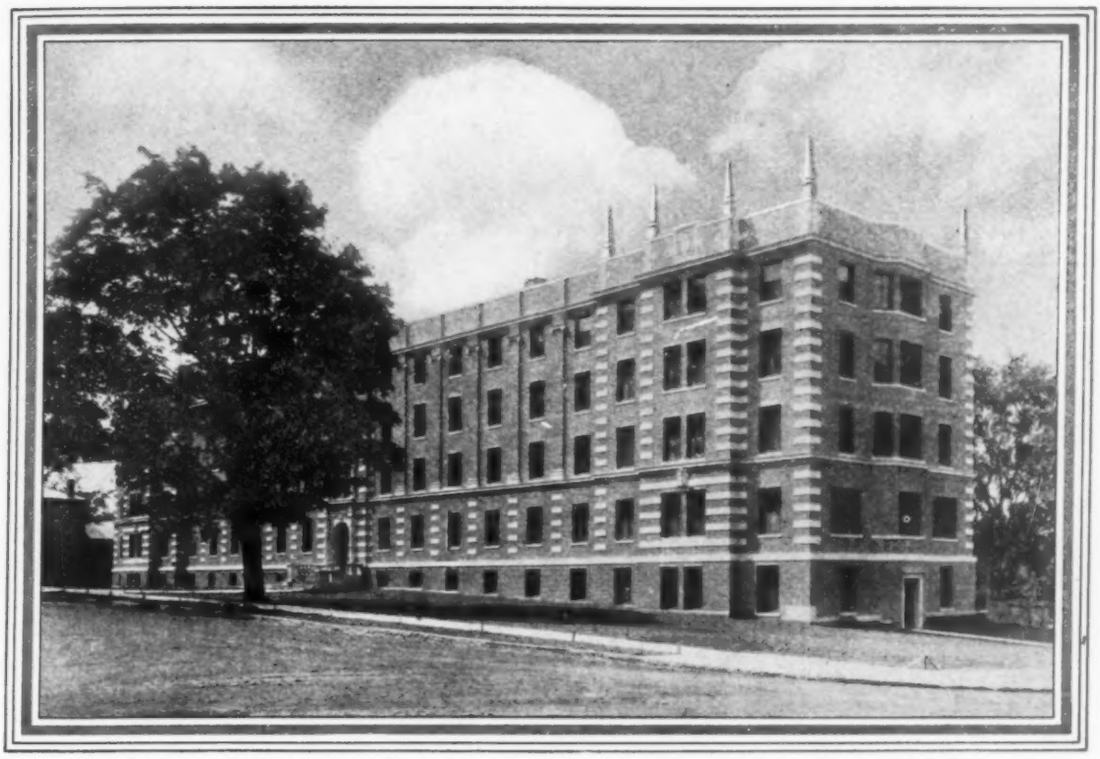

Bishop de Goesbriand Hospital, Burlington, Vt. Crane plumbing materials used. Architects, Magnus and Walsh, Boston, Mass. Plumbing contractor, H. C. Wheelock, Burlington, Vt.

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ADAPTING THE PROFESSION TO THE NURSE

By Esther Loring Richards, M.D., Associate Psychiatrist, Johns Hopkins Hospital,
Baltimore, Md.

IN 1920 there was started at the Johns Hopkins Hospital Training School for Nurses a modest course called Personal Adjustments. It was begun by the writer at the invitation of the superintendent of nurses and her associate, Effie J. Taylor, who was also director of nursing in the Phipps Psychiatric Clinic of the Johns Hopkins Hospital. Although not affiliated with the university, our training school was even at that time offering a curriculum that established its contribution to nursing education in this country. As part of its program the students since 1914 have received two months of practical training, with rounds on the wards of the Phipps Psychiatric Clinic, besides fourteen lecture-clinics on the academic side of this branch of medicine. In developing the educational training of these students, emphasis has wisely been put on fitting the curriculum to the pupil nurse as far as possible with the enlistment of her intelligent interest in its planning, rather than putting her through the paces of requirements as if earning parole.

Why Women Become Nurses

By virture of working with this point of view, it has become increasingly evident that the personal adjustment of the student nurse to her vocation is by no means an insignificant problem to any training school and hospital nursing staff. According to voluntary statements made by probationers of our own school, 90 per cent enter training for purely altruistic reasons; the professional urges of the other 10 per cent are divided between a desire for excitement and adventure, a steady occupation more remunerative than teaching, a chance to make a name for oneself, and a promising matrimonial field. Granting that each of the 90 per cent is as frank with herself as she volunteers to be with others, one still must ask whether the torch of altruism burns unflickering through the years of preparation and subsequent productiveness. According to medical and institutional traditions, it is expected to, and does to a large extent. In every hospital and community nursing organization one finds women whose satisfaction in life seems truly measured by the quality of service that they render others. The U. S. Public Health Service, the Red Cross and the I. V. N. A. are sending graduates out to cover large areas of congested city districts, or scattered habitations in rural communities isolated by the natural barriers of distance and poor traveling conditions. Underpaid and overworked, these workers are frequently left by desultory or incompetent medical supervision to struggle alone with social problems impossible of solution. It is a matter for wonder that every spark of professional idealism of student days is not smothered by weariness and disillusionment.

And for those whose graduate work lies in private or hospital nursing, there are strains of adaptation that are as serious as any encountered in extra-mural activities. Some are in charge of wards and act in a teaching capacity to the student body; others occupy administrative positions affecting the wheels of hospital machinery; still others through necessity or preference take up "specialing." Experience has shown that the greatest adaptive problems of the institutional graduate nurse is avoidance of hospitalization, or the loss of mental elasticity through succumbing to the deadening influence of routine. Regular hours of duty, the domestic protection of dormitory life, the progressive tendency for habitual work responses to drift into the sphere of automatic controls—all these facts tend to create an atmosphere favorable to the development of types. Every hospital has its types of nursing eccentrics who may be able guardians of the institutional fleece, but whose contacts with the undergraduate training school body and the innocent and helpless clientèle are thoroughly poisonous.

One has only to enter their petty sovereignty of operating room or dispensary clinic and listen to daily recurrent outbursts of scathing abuse heaped discriminatingly upon those who cannot defend themselves, to realize that here are conspicuously ill-balanced individuals functioning in a professional capacity which ought to embody at least the rudiments of good mental hygiene. Calling official attention to the fact that patients refuse to return for treatment and pupil nurses are not doing their best work under such atmospheric conditions, too frequently elicits the reply that all this may be true, but Miss ——— is indispensable to the routine of the department.

How Can We Adjust the Misfits?

Inquiry into the causes of these individual misfits reveals the fact that in some instances the explosiveness represents emotional habit patterns of middle age frayed by years of disappointment, jealousy, and a daily existence empty save for the assignment of duty; in other instances, the explosiveness is a more or less deliberate pose cultivated for the purpose of giving temperamental coloring to professional activity. Whatever may be the cause of the pathological behavior, we have in such nurses a voca-

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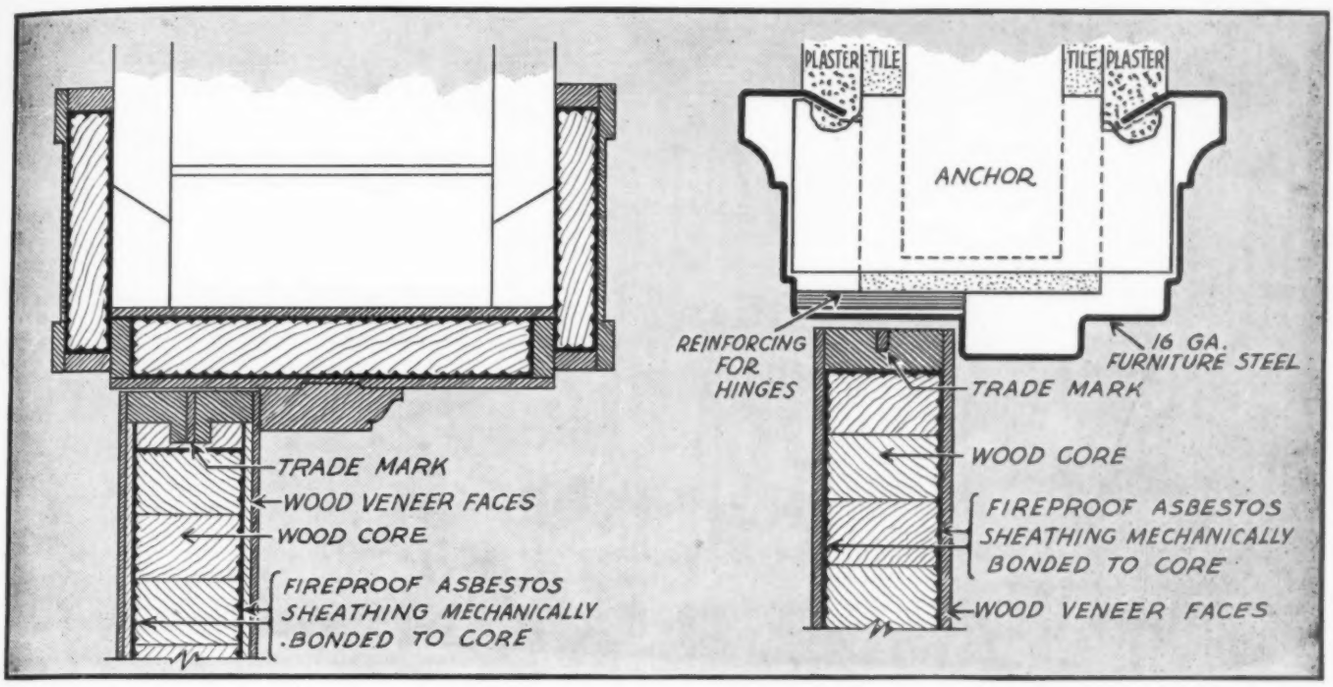

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tional maladjustment so demoralizing in its influence that any hospital or training school would function 100 per cent more effectively to be purged of this institutional material.

The department of "specialing" calls for an unusual endowment of adaptive capacity, despite the frequent undergraduate reflection, "If I cannot get anything else to do, I can always special." The average physician selects the nurse as carefully as any other therapeutic consultant for his patient. He comes and goes on visits; the nurse is with the patient constantly, catching her moods and all the play of subtle reactions to the daily routine of prescribed treatment. Such a nurse is an individual mine of helpful observations and common sense impressions that should form a large part of the medical formulation of any case. The successful "special" invariably enjoys her work, and her voice is not heard comparing notes of hardship and ill-treatment.

Faulty Start Is Responsible

Last, but all important among the vocationally unadjusted in the nursing profession, is that group of chronic complainers who hang upon the skirts of busy practitioners in a semi-patient and semi-nurse capacity, eager to enjoy all the privileges of invalidism without the annoyance of its financial handicaps. Their history, present and past, is essentially the same: they complain of weakness, irritability, and the hard way hospitals and doctors have treated them.

When one tries to readjust them, it is discovered that they have registered against surgical cases, and registered against obstetrical cases, and registered against nervous cases; they cannot work in general hospitals because of the strict regulations and poor food. Reading aloud makes them hoarse and gives them headache. They resent rubbing a patient's back at night because it is a duty belonging to the department of massage. A period of district nursing was tried, but after carrying a heavy bag in storm and heat for a few months, they drifted into industrial nursing, from which in due course of time they were obliged to flee because of noise and monotony.

Eventually, they conclude that they can work only in nursing homes, where they have a chance to rest two hours in the afternoon. These unfortunate women float about from one friendly physician to another, asking for an easy case—a patient to take to Florida or Atlantic City for a post-convalescent trip. What is the matter with them? Repeated physical examinations reveal nothing to account for the weariness and embitterment. Did Fate determine before their birth that they were to be chronically maladjusted? Obviously not. But it is reasonable to suppose that had these women begun early in their professional life to understand something of the reasons that gave them a faulty start in feeling and acting, they might have been spared the eventuality just described.

In other words, the time has arrived when nursing education must ask itself how far the training school is responsible for the satisfactory vocational adjustment of its students. The evolution of nursing from the voluntary and unskilled humanitarian activity to its present status of organized professional standards has brought about many changes in the hospital administration towards these members of its household. For example, it has been found that certain prerequisites of physical health, maturity and educational background constitute a necessary stable foundation on which to build nurses' training; that a more thorough initiation into the academic systems embodied in the science of medicine makes more intelligent cooperation between nurse and physician; that shortening of hours on duty, improvement in dietary regime, and attention to the comfort and attractiveness of living arrangements, play an important role in ministering to the morale of the student nurse. All hospitals of good standing recognize their responsibility in maintaining the above standards, having gradually become convinced through the trial and error method of actual experience that a class A training school for nurses is an economic asset. Now, college, university and secondary school have long been working on a systematization of education and have arrived at marvellous refinements of standardization, but they are just awakening to the fact that it is not the latter alone that determines the success or failure of any system of academic training. Courses of study, environmental hygiene, recreational activities, and even physical health can be brought within laws of standardization, but individual reaction to such organization is far too variable a quantity to conform to predictions of behavior.*

In *Mental Hygiene*, April, 1925, are recorded a few common vagaries of undergraduate reactions occurring at Harvard, Dartmouth and West Point. These misfits can easily be duplicated in any student group, if one has the time and wisdom to discover, understand and salvage them. Here were men functioning poorly from the standpoint of mental health in that they were failing to get out of their academic training all to which their intellectual and physical equipment entitled them. Maladjustment expressed itself in poor concentration, unevenness in academic responses, hypochondriacal complaining, over-critical and chip-on-the-shoulder attitudes.

Adaptive Capacity Is Real Test

This symptomatology familiar to all training schools for nurses has been ascribed to laziness and insubordination, for which large doses of moral suasion have been continuously administered with moderate results so far as flunking out is concerned. Except in rare instances, no busy superintendent or instructor has time to inquire into the setting of these specific difficulties. During the past few years, the writer has had an opportunity to learn something about the trend of these specific difficulties through the medium of the course previously referred to as given the junior and intermediate students of our training school for nurses at the Johns Hopkins Hospital. Under the topic, "Studies in Personal Adjustment," an attempt has been made to make the student pause and consider how she is facing the issues of life. To this end, attention is drawn away from the formal psychology of textbooks toward a concept of mind expressed in individual behavior and adaptation to life experiences. The real test of life is largely that of adaptive capacity. The latter depends partly upon endowment of intellectual and physical equipment and partly upon environmental influences and individual habits of growth and training from childhood. Each student is encouraged to take stock of the adaptive equipment with which she is endeavoring to get along in life, directing her thoughts along the following general lines:

1. What features of your behavior (thinking, acting, feeling) are you inclined to ascribe to hereditary tendencies? Or, in other words, what types of behavior are said to "run in" your family?

2. What associations and circumstances of pre-school years stand out in memory as having any special influence on your present habits and attitudes towards life? (c.f.

*Mental Hygiene, Vol. IX, No. 2.
"College Mental Hygiene Problems"—Arthur H. Ruggles, pp. 261-272.
"Mental Examinations of College Men"—Martin W. Peck, pp. 282-299.
"Management of Acute Mental Hygiene Problems Found Among College Men"—Harry N. Kerns, pp. 273-281.

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WHEELING,—W. VA.

relationship towards parents, brothers and sisters; effects of economic strains, etc.).

3. a. State school background prior to entering training.
   b. Average class standing (high, medium, low).
   c. Special aptitudes discovered or developed (handwork; literature; science; history; mathematics).
   d. Personality difficulties developed or accentuated during school period (c.f., shyness; day-dreaming; sensitiveness (to criticism, personal appearance, physical handicaps); aggressivness or inferiority in competition; etc.)
4. Habit responses.
   a. Do you form habits easily or with difficulty?
   b. In what types of activity are you most dependent upon habit formation?
   c. What are your habits of emotional response and the situations which commonly precipitate these moods? (c.f. anger, sulking, tearfulness, jealousy reactions, etc.).
   d. What do you find to be the comparative usefulness of the intellectual habits you have formed thus far? (c.f. concentration, memory, reasoning, planning, judgment).
   e. What are your characteristic habits of social response?
      Good mixer or anti-social?
      Friendships diffuse or concentrated?
      Do you gain refreshment from your recreations by virtue of relaxation, diversion or stimulation?
5. What special difficulties of adaptation have you realized since beginning your nurse's training? (Grasping and correlating practical and theoretical work? Getting along with patients, physicians, superiors and subordinates of the nursing staff? Adapting yourself to new arrangements and habits of living?)
6. Are your ambitions at the present time different from those with which you entered training?

Monotony Damps Enthusiasm

From these personality studies, incomplete as they are, certain facts stand out: First, only a small number—roughly, 5 per cent of students—denied adaptive difficulties of any sort. Second, the most common adjustment difficulty complained of was the feeling of abandonment of individuality, and identification with the mechanism of a large human machine. Heavy with a great mission from senior year in high school or college, it is hard for impetuous youth to realize that lowliness must again be young ambition's ladder. The monotony of a uniformed and squad-like existence, the regularity, setness and often apparent insignificance of duties assigned, stand out in marked relief against the glowing expectations of what service in the nursing profession was supposed to be.

Third, another common adjustment difficulty is associated with concentration and grasp of work. Students who have good records of accuracy and speed in laboratory work not infrequently make a poor showing in nursing technique. They lack the knack of making a patient comfortable, or dispatching routine duties of a busy ward before ten o'clock rounds. The resultant pulling down of academic marks has as discouraging an effect upon such an individual as failure to grasp theoretical material has upon her differently constituted classmate. The latter becomes aware that her hard-earned concentration habits of other educational existences are strangely ineffectual in the presence of fatigue and a menu of subject-matter foreign to lines of thought hitherto entertained. This subject-matter is frequently taught by those who have no broad background of general education or principles of pedagogy and, consequently, have little appreciation of the average pupil nurse's point of view.

A fourth adjustment difficulty is found in the friction rub of temperaments bound to occur in any situation of life when two or three are gathered together, but particularly constant and annoying in a large hospital environment where so many professional castes exist. It is here that the bitterness and rigidity of many a student unconsciously takes root in a disillusionment born of the petty bickerings, secret jealousies and stubborn antagonisms which she silently witnesses at close range in those whose official personality seems clothed in idealism at a distance. The cheerful acceptance of even legitimate criticism from such sources is not easy, and the role of scapegoat for offenses of others often constitutes an emotional strain so obvious as to be recorded on the student's report sheet sent in to the office as "tendency to impudence and uncooperative attitude."

Emotions Influence Decisions

The existence of emotional conflicts that lie at the springs of action are facts common to every human being. Experience has shown that they are more potent than reason or circumstance in determining choices, in forming judgments and controlling impulses. What stories of family disharmony and struggle, of personal disappointment in other ambitions, of temporizing over romantic decisions, lie behind the simple statements of those 90 per cent who record themselves as entering training because they desire to devote their lives to the service of human distress!

Among the collection of such facts, which it has been the writer's privilege to gather, is the story of a nurse who was noted during her student days for boisterousness in talk and laughter, and other conduct that characterized her as trifling and flighty. As a senior and graduate she was never given any position of major responsibility unless necessity required. In the latter eventuality, however, she always showed good judgment. The girl struggled up to our hospital from a small country town. Her father was a clever but dissipated physician, whose alcoholic debauches were the talk of the community. When sober he was a kind and indulgent father, but when under the influence of liquor he beat his children and abused his wife until she had lapsed into invalidism. Home was intolerable, and Miss B resolved to equip herself with an occupation that would at least enable her to offer some protection to the mother and young brother. Her period of training was haunted by the father's threat to visit the hospital and "pull a scene." More than once she had yielded to her mother's pleading and located him in a Baltimore dive from which she had to drag him back to her native town. She realized her poor concentration, but dared not give explanations; she also realized her unpopularity with classmates, to whose overtures for friendship she could only respond with an attitude of "kidding" neutrality, for fear that further intimacy would disclose the family skeleton. To adapt herself to the strain of constant worry and the requirements of her hospital life, Miss B deliberately disguised her true self under the unprepossesing exterior described.

It is conservative to estimate that every class in training school contains at least 50 per cent of individuals struggling more or less consciously with what old-fashioned philosophy was wont to call "troubled minds." Is nursing education content to scratch the surface of these personalities as it did in the case of Miss B? In every group of pupil nurses there stand out individuals with

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"Just What a Ligature Should Be"

ARMOUR'S Sterilized Surgical Catgut Ligatures, Plain, Chromic and Iodized, are made from sheep gut collected in our own abattoirs, where all animals are subject to State and Federal inspections before and after slaughtering.

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Fresh material is selected, washed, and rinsed in running water until it is mechanically clean. The gut is then split lengthwise and the mesenteric portion discarded. Nothing but the smooth side is used. This insures a string that is free from weak spots and knots and that is absorbed uniformly after being imbedded in the tissues. The strands are then slimed, scraped and treated in such manner as to remove all but the clean sub-mucous lining. During this process, requiring several days, the material is kept at a low temperature (near freezing) to prevent fermentation and minimize bacterial growth.

Sterilization

While in a moist state and immediately before spinning and drying the strips of gut are sterilized in an air-tight chamber by means of sulphur fumes.

Hand Polished

After drying, all Ligatures are hand polished until perfectly smooth. They are then taken off the racks and gauged, sorted, and all traces of fat removed by proper solvents.

Chromicizing

Chromicizing of Ligatures is done in a way to make the strings stand up in the tissues 10, 20 or 30 days, as may be desired.

The Plain and Chromic Ligatures are cut into proper lengths, placed in sterile tubes, and completely freed from moisture by heat and covered with storing fluid. The Tubes are here sealed and sterilized at 320 degrees F.

Special Sterilization

A special sterilizer built of brick, steel and tile was designed by the Armour Construction Dept. Superheated steam, generated in a small chamber, is regulated by self registering mercury thermometers with charts, which are kept for reference.

After the final sterilization samples are taken from each batch and tested in the Bacteriological Laboratory by bacteriologists who are entirely independent of the manufacturing work.

The Armour Sterile Catgut Ligatures are supplied as follows:

Plain and Chromic, Regular (60 inch) lengths, sizes 000, 00, 0, 1, 2, 3 and 4.

Plain and Chromic, Emergency (20 inch) lengths, sizes 000, 00, 0, 1, 2, 3 and 4.

Iodized, Regular (60 inch) lengths, sizes 00, 0, 1, 2, 3 and 4.

An Armour Staff is working patiently and constantly in scientific research and in the commercial production of those surgical and pharmaceutical materials, whose only legitimate origin is the successfully conducted abattoir.

PHARMACEUTICAL PRODUCTS

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characteristics of behavior early recognized as intellectually or morally unhealthy for the success and happiness of that organism. Advising "closer application" or "a change of spirit" may take the edge off the variation, but it does not reveal its etiology. The student whose individual variation savors of assets rather than liabilities is frequently as much in need of good hygienic supervision. In cultivating the clever and intellectually promising, does the system of education recognize and nurture the broad human sympathies that first gave birth to the profession of nursing and must ever vitalize its activities if they are to continue great forces in civilization?

With the expansion of curriculum and university affiliation, the training school of today cannot afford to lose sight of the individual student in the mass. For her it has the responsibility of providing not only an adequate educational program, but an opportunity for developing a real understanding of herself. The latter cannot be left to a course in psychology, or chance faculty relationships. It should be embodied in a definite plan beginning with the student's entrance and followed throughout her period of training. Associated with the routine physical examination upon admission, the pupil should have a psychiatric sizing up which aims roughly to estimate not only the intellectual status, but facts as to the background of home life and family relationship, trends of childhood development and prevailing abilities and disabilities.

A summary of these data with impressions and suggestions as to management of adjustment problems that may arise should constitute a part of the student's training school record. The study and supervising guidance of problem material thus discovered could be put into the hands of that member of the faculty best qualified by temperament, experience and training in a psychology that defines itself as "a study of human nature," to minister to individual needs that arise. The student falling behind in class work or reported disaparagingly by a head nurse, the student asking for frequent transfers of duty, the student frequently retreating to the infirmary or private ward with minor ailments grafted upon a neurasthenic constitution, should have the benefit of understanding inquiry early in her training school career, instead of being allowed to drift or to be dropped senior year, or worse, to go out into life as a graduate who does poor credit to herself or the school that trained her. The cost of salvaging this human material is not prohibitive. Every year hospital and community are placing heavier responsibilities upon the shoulders of the nurse. To meet this, nursing education is tuning its instruments by raising standards of admission and adding new requirements to prescribed courses of study. And in the midst of these necessary preparations, it is well to remember that the qualities of tone that make for harmony or discord in the orchestration of life are due only in part to the technique of the performer.

CELEBRATING AN ANNIVERSARY

A reception was held in the Corinne Casanas free clinic of the Presbyterian Hospital of New Orleans, La., on January 16 in celebration of the completion of the eighteenth year of the hospital's existence. Graduating exercises of the training school for nurses and the presentation of an American flag to the hospital by the Junior order of the United American Mechanics and Daughters of America were features of the celebration. This hospital is planning the erection of a new hospital unit, a new nurses' home and a modern office building for physicians.

HOSPITAL EQUIPMENT OF THE MALOLO

Many who are still in the prime of life can remember the day when even on the passenger liners of the better class the hospital facilities were crude and entirely inadequate. Conditions have improved greatly in recent years, however, and the progress that has been made is strikingly illustrated by the specifications for the hospital equipment of what is to be the largest and fastest high powered passenger steamer ever built in the United States.

The vessel is the Malolo (Hawaiian for Flying Fish), which is now being constructed for the Matson Navigation Company at Cramps' Shipyard, Philadelphia. When completed in the spring of 1927 the boat will be placed on the San Francisco-Honolulu run. With her 22,000 ton displacement, her 582 foot length, and her 83 foot beam she will be one of the finest vessels on the Pacific. Her speed of twenty-five knots an hour will enable her to make the round trip in four days less than the fastest vessel now plying between the two ports.

The passenger hospital will include two wards, a bath, dispensary, operating room, and an attendant's room. The crew hospital will consist of a ward and bath. Each of the passenger wards will accommodate four persons, while the crew's ward will take care of six persons. In addition to the berths, each ward will be fitted with a desk, three white enamel hardwood chairs, and with portable trays of hardwood which can be attached to the berths for the use of the patients when taking their meals.

The equipment of the operating room will include the usual operating table, anesthetist's outfit, sterilizing outfit, instrument and dressing cabinet. The dispensary will be fitted with the necessary desks, chairs, dressers, medicine cabinets and bottle racks. The hospital will be floored throughout with a special flooring composition and ceramic tile. The walls will be painted with white enamel. *Medical Journal and Record.*

PUBLIC LIBRARY SERVES THE HOSPITAL

It is well known that many a hospital physician has his ingenuity taxed to the utmost, to provide diversion and amusement for his convalescent patients. The radio has been a godsend to sick people, whether in the hospital or home, bringing, as if by magic, contact with many cities and many climes.

The hospital library for patients has not been developed as it should have been in our institutions. A fine example of the service of the city library to the hospital shut-ins is furnished by the Sioux City Public Library, Sioux City, Iowa. The hospitals in this city are in reality sub-stations of the central city branch, and books on fiction, travel, history and biography are taken to the sick by the interested and kindly city librarians. Not a few hospitals could profit by this plan and it might be wise for other hospitals to make similar arrangements with their local libraries.—*Atlantic Medical Journal.*

The oldest hospital in the new world is the Hospital Jesus Nazerino in the city of Mexico. It was founded by Cortez in 1524, and is still conducted as a hospital, largely with an endowment left by the great conqueror in his will. The Dukes of Terranova y Monteleon, the descendants of Cortez, still exercise the right granted to Cortez to name the superintendent.

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Cut Floor Maintenance Costs

with this Wonderful New Electric Floor Polisher

We have an unusual Special Offer for Hospitals on this marvelous, new Johnson's Wax Electric Floor Polisher. Don't fail to get it. A letter or the coupon below will bring you our Special Hospital Proposition by return mail.

THIS handy Johnson's Wax Electric Floor Polisher is just what you need in your institution. After you have had it a week you wouldn't be without it. It polishes floors ten times faster than any other method. Each easy stroke of this handy Electric Floor Polisher leaves a glowing path of shining lustre, deep burnished into the very substance of the floor—wood, linoleum, rubber, etc.

JOHNSON'S WAX *Electric floor Polisher*

It is simple of construction—there is nothing to get out of order. Light in weight—only 9 lbs. Runs from any lamp socket or electric connection at a cost of 1½ cents an hour. The Johnson's Wax Electric Floor Polisher is quiet—you can polish right under the beds of patients without disturbing them. It is easy to operate—in fact it runs itself—the operator just guides it with the finger tips. Anyone can use it—it doesn't require experience or skill.

The price of a Johnson's Wax Electric Floor Polisher is only $42.50 (in Canada $48.50) and with each Polisher is given Free a $1.50 Lamb's-wool Wax Mop and a supply of the famous Johnson's Liquid Wax.

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OUT-PATIENT SERVICE

Conducted by MICHAEL M. DAVIS, Ph.D., Executive Secretary, Committee on Dispensary Development, United Hospital Fund of New York, 15 W. 43rd Street, New York

and by ALEC N. THOMSON, M.D., Medical Secretary, Committee on Dispensary Development, United Hospital Fund of New York 15 W. 43rd Street, New York

COORDINATING THE STAFFS OF THE IN AND OUT-PATIENT DEPARTMENTS

By John D. Spelman, M.D., Superintendent, Touro Infirmary,
New Orleans, La.

MANY hospitals report a lack of coordination and harmonious relationship between the medical staff of the hospital and the medical staff of the out-patient department. Only too frequently is the fact ignored, in spite of confessions to the contrary, that every properly functioning hospital has an out-patient department. The mistake is that we are prone to think of an out-patient department more in terms of a physical facility or in the light of its direct relationship to the community rather than its definite functional relationship as between the in-patient department of the hospital under whose auspices it is conducted. Every hospital is routinely expected to carry on the functions of admission as well as that of medical follow-up and after-care of the discharged bed patients.

When patients apply for admission to any institution, the question of their acceptance on the basis of both economic and medical grounds must be decided, together with their proper assignment to the respective professional services in the institution. I rather imagine that there is no hospital that does not possess an out-patient facility in which we could not at times see the spectacle of unadmitted ambulatory patients interrupting the routine of ward work for redressing and other items of follow-up after their discharge.

This preface is by way of the fact that, in the writer's opinion, hospitals that do not possess an out-patient department should nevertheless be most interested in a discussion of its policies, and also is it by way of introducing the point that the question of proper coordination and harmonious relationship between the staffs of the in and out-patient departments is dependent upon the recognition of a primary functional relationship between these two departments.

Harmony or Friction

THE leading article in the October issue of THE MODERN HOSPITAL suggested a number of topics for informal discussion at the American Hospital Association meeting, among them the following: Many hospitals report a lack of coordination and harmonious relationship between the medical staff of the hospital and the medical staff of the out-patient department. What can be done to promote a better mutual understanding that will result in better team work? Doctor Spelman, superintendent, Touro Infirmary, New Orleans, La., presents below at least a partial solution of this problem.

Let us not admit for a moment that the medical staff of the hospital and the medical staff of the out-patient department are two separate entities. Of course, for various reasons, the personnel might be different but it should be made up of members with relative rank on one staff, directed and supervised within each staff department by an administrative entity of a chief and his associates.

In its relationship to the community, an out-patient department serves in a much broader capacity than the hospital itself coming in contact, as it does, with many cases in which current ills are corrected before economic efficiency is entirely lost with the consequent necessity of hospitalization. In its relationship to the hospital proper, it serves the function of producing and selecting from the larger group which it serves proper candidates for admission to the wards of the institution and, after discharge of the cases, furnishes the setting for the proper after-care and medical follow-up to be carried on. If those patients whose illness indicates the necessity for care in the hospital as well as the out-patient department are to have continuity of medical service, then must the functional relationship of the personnel of both departments be close indeed.

A staff connection in terms of out-patient service should be the first medium in higher education in medicine as well as the stepping stone to higher responsibility in service. The educational opportunity and the prestige of staff connection are the attractions to this service for the young man in medicine, but it is apparent that there must be more than this to serve as a constant stimulus for doing the highest type of work in an out-patient department where time and pressure of volume tend to make the work onerous and treadmill-like.

The service of these men must be linked with the ac-

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Greeley City Hospital
Greeley City, Colorado
Architect:
W. N. Bowman Company
Plumber:
J. D. Potter Plumbing & Heating Co.

Hudson River State Hospital
Poughkeepsie, New York

Mercy Hospital
Janesville, Wisconsin
Architect:
Backus & Pfaller
Plumber:
H. E. Hathorne

St. Lawrence Hospital
Lansing, Michigan
Architect:
S. D. Butterworth
Plumber:
Wheeler-Blaney Company

Washington County Memorial Hospital
Bartlesville, Oklahoma
Architect:
Walton Everman
Plumber:
SellOrr Heating Company

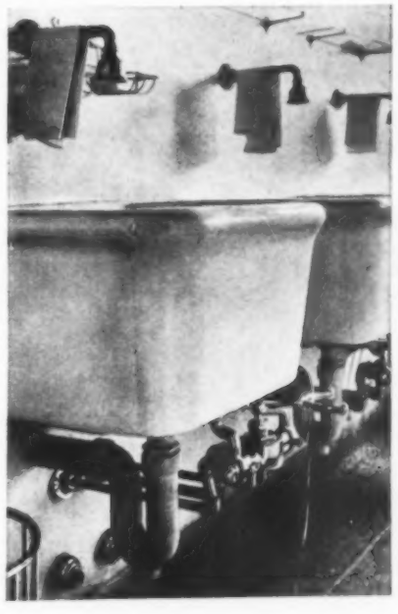
Norwegian Lutheran Deaconesses Hospital and Institute
Minneapolis, Minnesota
Architect:
Alban & Fischer
Plumber:
Shaw & Co.

Setting, and Ever Increasing, the Standards for Hospital Plumbing

SINCE its beginning in 1878, the Clow organization has had but one aim—*to set the standards in every field that Clow products serve.*

This aim has been responsible for Clow's preeminence in the hospital plumbing field and for the efforts that Clow is constantly exerting to increase even its high present standards.

An aim, so high, cannot help but result in a most complete line of carefully designed fixtures — both for sanitary and hydro-therapeutic use. And behind those fixtures, stands an impressive list of Clow installations that are living through their fifth, tenth and fifteenth year of service.



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tivities of the rest of their department. The ward surgeon must know the problems of the clinic and the clinician must have an opportunity to contact with the problems of the ward. What does it avail the young man in terms of experience, if his observation is not checked up by older men and his treatment verified by them? The chief of the department and his associates must attend the clinics on a regularly scheduled basis, always consistent, of course, with their other duties. By this means the clinicians will not only receive the inspiration and the benefits of the teaching ability of these men but will be sincerely impressed with the evidence that their chief recognizes that the out-patient department is not the "step-child" in the scheme of things.

Linking Clinic With Ward Service

In addition to this, not only should it be a privilege but an obligation as well for the men in the clinic to visit (not attend) patients who have been referred by them to the ward. They are not only thus afforded an opportunity of observing the problem of the ward routine but they can contribute materially to continuity of service, both by transmittal of their observations directly into the wards and also by being better prepared to apply any needed after-treatment, should the patient return to them in the clinic after discharge.

Likewise in the machinery of after care, the system should be set up in a soundly administered hospital to include the obligation on the part of the ward surgeon to go to the out-patient department at regularly stated times, to see along with the clinician the cases that have been discharged with the instruction to return to the clinic for further observation or treatment. This process can be evolved on a regular appointment basis and the assistance of the social service department should be invoked to insure the return of the patients who have been discharged to the clinics on the days when the ward surgeon's attendance is scheduled.

Continuity of service and the prevention of needless duplication of x-ray and laboratory procedures can be accomplished to a high degree by the mutual transmittal of history briefs as between the out-patient and the hospital proper. This process is, however, an artificial one at best and can not possibly give to the institution and its patients the benefits of carrying on the relationship in a functional way.

Since this definite functional relationship does exist between the out-patient and in-patient departments, it is evident that if the medical staff is so organized as to carry out these functions in the logical manner that best insures continuity of service to the patient, then there need not exist any question as to coordination and harmonious relationship.

COMBATING FIRE HAZARDS IN NORTH CAROLINA

The state fire marshal of North Carolina recently reported that the fire risk in 1924 in private hospitals of the state was higher than that in filling stations and in cafés. Among eighty-seven private hospitals, there were nine fires, each necessitating the removal of all patients. In five of the nine the destruction exceeded 50 per cent. Three hospitals were totally destroyed and in one case three patients lost their lives. The fire marshal advised the conversion of the older hospitals into fireproof structures. Hospitals now under construction in the state are almost all being built of fire-resistant materials.

PROVIDING FOR TUBERCULOUS PATIENTS WITH MENTAL DISEASES

The report of the study of the institutional requirements for patients who have both tuberculosis and mental or nervous diseases, prepared by Dr. Samuel W. Hamilton and Mr. T. B. Kidner, under the auspices of the National Tuberculosis Association, has been published in pamphlet form.

Inquiries show that the number of patients in psychopathic hospitals who have tuberculosis varies from 2 per cent to more than 8 per cent. Although the general type of patients seems similar in each institution, they conclude that the number of tuberculous patients discovered depends on whether there is a tuberculosis specialist on the medical staff. In the hospital reporting only 2 per cent of its patients as tuberculous, there was no staff member who had any special experience with tuberculosis, while at the hospital reporting 8 per cent tuberculous, one of the staff had specialized in tuberculosis. After consulting specialists, it was agreed to assume that not less than 5 per cent of the total number of beds in psychopathic hospitals should be arranged for tuberculous patients.

One-Story Building Desirable

Among the tuberculous patients in psychopathic hospitals the percentage of bed patients was estimated at fifty and the semi-ambulant cases at thirty. Of the total number of tuberculous patients 10 per cent will be at times disturbed cases; 15 per cent will be constant observation cases, and 75 per cent quiet cases. The problem of planning accommodation is to segregate into three groups from the point of view of the mental state and at the same time have facilities for rest, fresh air and nourishing food for those who are tuberculous. One-story buildings of the pavilion type will generally be more suitable for tuberculous patients in psychopathic hospitals except where there is a large number of patients and the building area is limited. Separate units should be provided for each sex except, perhaps, in small institutions.

Rooms for disturbed cases should be at one end of the buildings with windows facing away from the other patients, and be provided with sound-deadening partitions and ceilings. Each patient should have a single room with sleeping porch, and if possible a day or sitting room should be used in common. For disturbed patients there should be a separate water section for bathing and toilet purposes, unless the number of patients is small. The constant observation cases are most conveniently quartered in a ward of the open type having the sleeping quarters separated from the day room by a dwarf wall or partition about four feet six inches high so that the nurse may view the patients.

Quarters for the quiet cases in which there is tuberculosis may follow the usual arrangement in tuberculosis sanatoriums. There should be a combined office and examination room for the physician in charge, and in units as large as sixty beds and upward separate rooms for minor surgical procedures, dental chair, office or duty room for the head nurse, and facilities for heliotherapy, including sun treatment and artificial heliotherapy. The sun treatment decks should be located so that patients cannot be observed from other buildings or high grounds, and one side should be sheltered so that a cot may be wheeled into the shade and the period of exposure to the sun graduated. When the number of patients is large, there should be a special room for artificial heliotherapy.

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Fire

EVERY now and then some hospital burns down with appalling loss of life. There is a growing public realization that helpless patients should not be housed in any but modern fireproof buildings. A hospital with an old building and a good record can raise ample funds for new fireproof construction by laying the facts before the public in a systematic, dignified campaign.

An inquiry to us will involve no obligation, and will bring information that may be useful.

WILL, FOLSOM AND SMITH

Directors of Campaigns for Hospitals Exclusively

Five Hundred and Twelve Fifth Avenue
New York

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DIETETICS AND INSTITUTIONAL FOOD SERVICE

Conducted by LULU G. GRAVES, 7 East 54th Street, New York
and MARY A. FOLEY, Director of Dietetics, Kahler Hospital, Rochester, Minn.

CONDUCTING A DIABETIC FOOD DEMONSTRATION

By Sarah Elkin, M.S., Dietitian, Beth Moses Hospital,
Brooklyn, N. Y.

THE accompanying postcard was sent to all our out-patient diabetics and to others interested in the work. Posters were also conspicuously placed in the out-patient department and in the hospital proper announcing the demonstration. These brought over a hundred and fifty diabetics, doctors and nurses to our demonstration. Although it was undertaken as an experiment, it proved successful, and everyone was so interested that we consider it now the first of a series of such undertakings.

You who deal with diabetics, especially with those not confined to the hospital, know how hard it is to keep the diabetic from being hungry all the time. Therefore in this demonstration special emphasis was laid on the preparation of foods that contain very little food value or none. These we call "fillers," for the patient feels satisfied after eating them but is not required to figure these things in the prescribed diet.

After a few introductory remarks about diabetics and the part that insulin plays in aiding the patient, the demonstration proper was conducted by the two dietitians.

The exhibit consisted of the following preparations:

A. *Bran Wafers:* some of these were attractively decorated with cream cheese, nuts, stuffed olives, and pieces of colored agar jelly.

B. *Agar Jelly:* these were made into fancy moulds, and some were combined with fruit, whipped cream, different sugarless flavors and colors.

C. *Thrice Cooked Vegetables:* prepared as salads.

D. *Cocoa:* made of cocoa shells.

Recipes for the above were distributed to the visitors, then the actual preparation was demonstrated and the variations, combinations and substitutions were explained.

The accompanying plates are samples of some of the dishes exhibited. The ordinary bran wafers made of washed bran as a foundation, with a little spice added for flavor, are acceptable to the diabetic and variety is procured with just a little extra effort. The allowance of cream cheese may be spread on it and, with a touch of colored agar jelly, this makes an attractive sandwich for afternoon tea. The agar is a very acceptable dessert especially when the carbohydrate allowance is low. Thrice cooked vegetables retain little flavor but add a great deal to the bulk of a meal that would otherwise appear quite frugal. The cut shows a salad prepared with cabbage, spinach, Brussel sprouts, carrots, cauliflower and asparagus — all thrice-cooked.

Two stores in New York that conduct special diabetic departments sent in displays of diabetic foods such as diabetic canned fruits and vegetables, vegetable colorings, saccharine, agar-agar, mineral oil, cocoa shells, washed bran,

BETH MOSES HOSPITAL, BROOKLYN, N. Y.
Stuyvesant Ave. at Hart St.

DIABETIC FOOD DEMONSTRATION

To be conducted by Miss Sarah Elkin, Dietitian.
Mrs. Anne Peyser, R. N.

OUT PATIENT DEPARTMENT, BETH MOSES HOSPITAL

April 1, 1925. 4:30 P. M.

Come and learn how to prepare appetizing dishes for the diabetic patients.

Postcard sent to out-patient diabetics and to others interested in the work.

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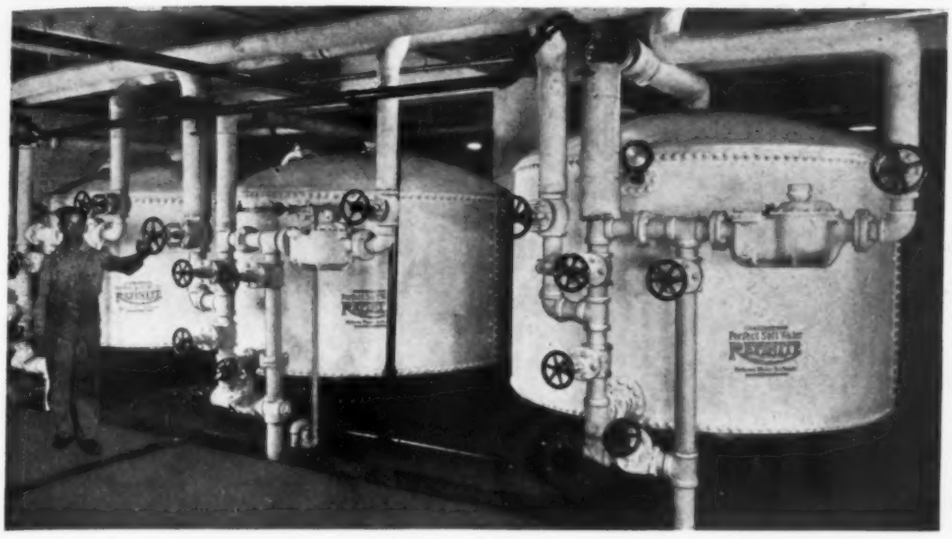


That hospitals need soft water is generally admitted. It only remains to select the water softener that has proven most perfect over a period of years. REFINITE has stood the test of time.

THE REFINITE COMPANY
Manufacturers Zeolite Water Softeners
REFINITE BUILDING — OMAHA, NEBRASKA

There are certain qualifications that the buyer of a water softener for hospitals and other purposes should always bear in mind, by carefully considering the merits of a certain type as compared with others which are offered to the public.

REFINITE
RIVAL OF THE CLOUDS
TRADE MARK

Unless a softener has demonstrated its worth by years of successful operation, it cannot be purchased with assurance and confidence.

Whether a water softener is of the highest type or one of mediocre quality depends most of all on the mineral. Outstanding features required of a successful water softener of the highest type are as follows:

MINERAL WITH GREATEST CAPACITY

MINERAL FREE FROM IRON RUST

MINERAL PROVEN TO HAVE LONGEST LIFE

MINERAL REQUIRING LEAST REGENERATIONS

Refinite Rapid Mineral can be regenerated in thirty minutes and when used with our rapid generator it makes the greatest improvement in water softeners within the history of this water softening process. The rapid regenerator does away with the cumbersome salt tank. The three 96″ units in the Kimball Laundry, Omaha, Nebr. are regenerated by the small tank shown in the cut above. The size of the units and the salt tank illustrate the relative size of each. The regenerator can be located on the floor above or below, or anywhere where a little space is available. It is usually located at the salt storage bin, thereby saving much labor. It saves salt, labor, water and space. Capacity is based on American Standard Soap Test as prescribed by the American Public Health Association. It is most rigid and eliminates all guesswork. No other should be used.

One who buys without investigating the merit of REFINITE is taking an unnecessary risk. Inquire of any user of a Refinite Softener and invite comparisons. Over three thousand softeners in daily use in United States and Canada.

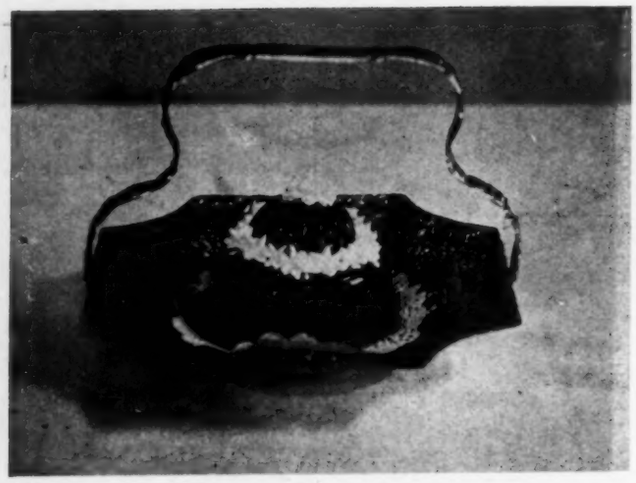
A few of the hospitals using Refinite Softeners are as follows:

U. S. Veterans Hospital, Chicago, Illinois.
Government Hospital, Regina, Sask.
Nebr. Methodist Hospital, Omaha, Nebr.
St. Francis Hospital, Waterloo, Iowa.
St. Joseph Hospital, Sioux City, Ia.
German Lutheran Hospital, Sioux City, Ia.
New Madison Hospital, Madison, S. D.
Providence Hospital, Moose Jaw, Sask.
Provincial Hospital, Battleford, Sask.

REFINITE COMPANY,
Refinite Building, Omaha, Nebraska.

We are interested in water softeners. We need ..... gallons every ..... hours.
Hardness of water ..... grains.

Name.....
Address.....
.....



Agar jelly made in a fancy mould and combined with fruit and whipped cream.

diabetic candy and chewing gum, and sugarless flavors. There were also exhibited a rotating dial food scale and literature for the diabetic. These added a great deal to our demonstration, and at the close many came to the demonstration table for further information.

There was also included in the exhibit a urine testing outfit, with very simple directions, for determining the presence of sugar with the aid of Benedict's solution. The outfit consisted of test tubes, a test tube holder, and alcohol lamp, and Benedict's solution. Our hospital chemist, Miss Vilkommerson, demonstrated and explained the process of qualitative urinalysis for sugar, and showed how this could be used in the home by the patient himself.

Nine Basic Diets for Diabetic

We have a series of nine basal diets for the diabetic which have been worked out in our diabetic department and used in the management of the adult diabetic; we make modifications for the children. These are based on the number of calories required by the patient according to the weight of the individual. We allow them thirty calories per kilo of body weight, and two-thirds gram per kilo for protein.

$$\text{Fat} = 2 \text{ Carbohydrate and } \frac{\text{Protein}}{2} \text{ (Woodyatt formula)}$$

9 Fat and 4 Carbohydrate and 4 Protein = total number of calories.

Basal Diet Chart

	Weight		Theoretical			Cal. at 30 Cal.
No.	lbs.	kgs.	COH	P	Fat	per kg.
1	80	36	38	24	88	1080
2	90	41	43	28	100	1230
3	100	45	48	30	111	1350
4	110	50	53	34	123	1500
5	120	55	59	36	136	1650
6	130	59	63	40	146	1770
7	140	64	68	42	157	1920
8	150	68	72	46	167	2040
9	160	78	77	50	179	2190

For example, a person weighing 140 pounds (64 kilograms) would require 1920 calories, or carbohydrate, 68 grams; protein, 42 grams; fat, 157 grams.

Vegetables—Portions

Asparagus, canned .....8 stalks
Cabbage .....6 rounded tablespoons
Cauliflower .....4 rounded tablespoons
Celery .....3 small stalks and 12 slices cucumber
Lettuce ....4 medium leaves and 1 medium fresh tomato
Egg plant .....1 slice 5 inches in diameter, ½ inch thick
Tomatoes (canned) .....6 rounded tablespoons
Rhubarb (fresh) .....6 rounded tablespoons
Sauerkraut .....8 rounded tablespoons
Spinach .....5 rounded tablespoons
String beans (canned) .....8 rounded tablespoons
String beans (fresh) .....3 rounded tablespoons
Beets .....3 rounded tablespoons
Carrots .....3 rounded tablespoons

10 Per Cent Fruits—Portions

Orange ..... 1 small
Grapefruit .....½ small
Cantaloupe .....½ small
Peach (fresh) ..... 1 small
Pineapple (fresh) ..... 2 slices

15 Per Cent Fruits—Portions

Apple ..... 1 medium
Pear ..... 1 small
Plums ..... 2 medium

These diets are prepared to conform with the Kosher Dietary Laws. According to the Mosaic Laws meat must be specially treated before it may be used. First of all the "Schochit" (surgeon of animals) kills the animal in such a way that as much blood as possible is carried off, then, to be sure that none remains, the meat is soaked in water for one-half hour, then taken from the water and salted, allowed to remain this way for one hour, then washed and cooked. After having gone through this process it requires much seasoning and the addition of vegetables and prolonged cooking to give it both flavor and tenderness.

Bran wafers decorated with cream cheese, nuts, stuffed olives and pieces of agar jelly.

In any given meal, meat or any of its products may not appear with milk or milk products. For convenience I shall classify the foods thus:

Meat	Dairy	Neutral
Beef	Milk	Cereals
Lamb	Butter	Fruits
Veal	Buttermilk	Vegetables
Chicken	Cheese	Vegetable fats
Duck	Cream	Eggs
Goose		Fish
Turkey		

The neutral foods if properly prepared may be served at either the meat or dairy meal. By this I mean that

Adv. page 70

Self-contained, Full-automatic

THE first self-contained, full-automatic refrigerating machines were Lipmans. Not only were they pioneers in the field, but they continue as leaders today.

Lipman Full-Automatic Refrigerating Machines are very compact, safe, clean, and efficient. Easy to install—economical to run. Exceptionally free from mechanical defects. All Lipman Machines use ammonia.

Sixty-five Sales and Service Stations make it possible for every hospital to have Lipman's Refrigeration and Lipman Service. There's a size for every purpose. Write for the facts.

General Refrigeration Company

126-194 Shirland Ave. Beloit, Wisconsin

GR CO.

THE DRY, CONSTANT COLD OF THE MOUNTAIN TOP

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Salads prepared from thrice cooked vegetables.

vegetables, if prepared with butter, may be served at the dairy meal but not at the meat meal, but if prepared without butter they may be used at the meat meal.

These diets are used for the out-patient diabetics and are also given to the hospital patients when they leave the hospital. They are thoroughly explained to them, and instruction is also given in substituting. For instance, for supper, different kinds of fish, both canned and fresh, may be used instead of the egg, or the egg may be prepared as a custard with part of the allowance of cream and a little water. If strictly adhered to, these diets will keep the patient practically sugar free. The physician determines whether or not the patient requires insulin, and if so, prescribes the amount.

These diets are of course based on the principle of carbohydrate restriction as the mainstay in the treatment. However, the physicians in charge of our diabetic clinic are now contemplating a rather new departure in the dietetic management of diabetes. They intend to experiment with high carbohydrate diets, supplemented with insulin in sufficient dosage to keep the patient sugar-free.

The three physicians of our diabetic clinic, Dr. Davidson, Dr. Loewe and Dr. Banowitz, gave informal talks to emphasize the value of the strict diet in controlling the disease. One of these talks was given in Yiddish for most of our patients are Jewish.

The demonstration was concluded with a party for all those present. We served agar jelly with a rosette of whipped cream, bran wafers, and cocoa-shell cocoa, all containing no food value with the exception of the small amount of cream on the agar jelly.

A second of the series of demonstrations was held in the summer during the Hospital Open House Week in Brooklyn.

REVISES METHODS OF TREATING GASTRO-INTESTINAL CONDITIONS*

It has recently become necessary to revise our ideas concerning the treatment of gastro-intestinal conditions to include the following factors:

1. The role of spasticity.
2. The influence of the vegetable nervous system.
3. New knowledge of the vitamins.
4. Influence of a disturbed calcium-metabolism.
5. New knowledge about gastric secretions.

Proper food is the most important factor in treating diseases of the digestive system, but of course, success depends upon a correct diagnosis. The problems are so complex that authorities disagree. A diagnosis on the basis of symptoms alone may result in such serious errors as mistaking appendicitis for gastric ulcer.

Spasticity plays an important role in alimentary disease, and is closely related to calcium-metabolism. Removal of the parathyroids produces tetany associated with a disturbance of the calcium-metabolism. Irritability of the vagus with resulting spasm may be due to disturbed calcium-metabolism so that calcium-therapy, the use of lime water, lime salts and milk should be helpful, and indeed has been successfully used empirically.

There is a general lack of knowledge of the relation of spasticity to constipation. Alvarez has demonstrated that the muscular gradation of the intestinal tract may be leveled or even reversed so that fluids only are transmitted. Yet, coarse foods leaving a large residue are prescribed for constipation often when the individual has a spastic colon.

A knowledge of whether the gastric secretion is normal, or above or below normal is not a safe basis for formulating diets unless the underlying cause is known. Hyperacidity and hypo-acidity are associated with widely varying conditions. A diet for hypo-acidity alone would be dangerous in extreme myocarditis, yet the two conditions are often associated.

Our increasing knowledge of vitamins has opened up a new phase of nutritional problems. Since vitamins are absolutely essential to sound metabolism, it is of fundamental importance that the dietitian should know the food—sources of the vitamins, their solubilities and the effect of the preparation of food on the vitamin content. Further knowledge will probably result in a more rational method of preparing foods. When patients are kept for an extended period on a restricted diet for ulcer, enterocolitis or muscular insufficiency, failure of the treatment has often been caused by a vitamin deficiency. Vitamin-rich diets are essential for treating pellagra.

*Abstract of paper on "The Dietetic Treatment of Gastro-Intestinal Conditions," by C. W. Dowden, read at meeting of Hospital Dietetic Council, Louisville, Ky., October 21, 1925.

MASSACHUSETTS DIETITIANS TO HOLD MEETINGS

The Massachusetts Dietetic Association will hold meetings at the Boston Art Club, Boston, in March, April and May in accordance with the following program:

Friday, March 12, 8 P. M.
"What Constitutes a Food?"
Dr. Lafayette B. Mendel, Physiological Chemist, Yale University.
Dinner 7 P. M.—Boston Art Club.

Tuesday, April 13, 8 P. M.
"The Dietary Treatment of Gastric Ulcer"
Dr. Chester B. Jones, Assistant in Medicine, Massachusetts General Hospital, Boston.

Tuesday, May 11, 8 P. M.
Speaker to be announced.

Tuesday, May 25, 8 P. M.
Business Meeting
Dinner 7 P. M.

The January meeting of The New York Association of Dietitians was held at the Mayfair Demonstration Auditorium, January 11, and was devoted to the subject of "Dietitians in Commercial Work."

Alice Foote MacDougall gave an interesting account of the history of her attractive tea rooms.

Mary Elliott Arnold of the Cooperative Cafeteria spoke on "Relation of Costs and Food Values from the Cooperative Angle."

Blanche Geary, whose subject was "Cafeteria Planning," gave an interesting talk from her wide experience in this field.

Adv. page 72

Many surgeons like the bright white Boott Towels, while others favor the natural colored towels as being less tiring to the eyes.

Surgeons Prefer Boott Towels

Once a surgeon has used Boott Towels he demands them always, because he knows how highly absorbent they are, because he knows how soft they are to the touch.

Hospital superintendents, too, are fast learning the value of Boott Towels. They like them because they are efficient in absorbency, because they are sturdy and will stand up under the grueling wear a hospital gives them—and the constant disinfecting, too. They find them economical. They like them for their reasonable price. They admire their clear, refreshing whiteness.

Ask your supply house to show you Boott Towels and Toweling at once—but if you find they do not carry them, write us direct and we will send you samples and prices. We know that once they are tried out in your hospital they will soon be standard equipment. Boott Mills, Lowell, Mass.

BOOTT BOOTT MILLS **TOWELS**

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HOSPITAL EQUIPMENT AND OPERATION

With Special Reference to Laundry, Kitchen and Housekeeping Problems

Conducted by HERMAN SMITH, M.D., Superintendent
Michael Reese Hospital, Chicago, Ill.

BOILER ROOM SCALE—THE PARENT OF LARGE COAL BILLS

By Russell Byron Williams
Chicago

BOILER scale one-eighth of an inch thick increases coal consumption 22 per cent. Yet an eighth of an inch thickness of scale is not in the least unusual, as the tubes of many boilers are coated with two or three times that amount when the engineers declare them to be scale free.

Nearly everyone has observed the effect of scale in the thick coating (sometimes called "lime") clinging to the interior of a used tea kettle. Insulated in this way, more heat is required to bring the water in the kettle to the boiling point. On the other hand, scale is seldom if ever found in a wash boiler. This is because soap has been added to the water to reduce its hardness and has thereby put the water in a condition to help dissolve the dirt. Pure water is needed in all laundry work, since it will readily dissolve almost any solid placed in it. Indeed it will dissolve iron to a certain extent and because of this pure water is avoided in steam making.

Not long ago the writer visited a hospital where the engineer was distilling all water before use. While he never encountered scale or false insulation he could not understand why his boilers, tubes and piping were so badly pitted and required frequent replacement. It is plain that he was overlooking the fact that pure or "zero" water is almost as destructive as scale-forming water.

When the minerals are removed from water, it has a strong affinity for those elements. Pure water does not contain minerals such as iron, so that when it comes into contact with iron it immediately sets to work absorbing this element and continues until its hunger for iron has been satisfied. The same is true with other elements, such as manganese, phosphorus and sulphur. This fact explains why the tubes and piping in the otherwise efficient hospital power plant became pitted and badly corroded in a comparatively brief period.

We often think of rain water as being pure, but as a matter of fact it is far from being pure, as it necessarily absorbs many foreign elements from the air. Distilled water is practically the only pure water, and that is why it is always recommended for automobile or storage batteries, or other uses where the presence of minerals would prove destructive.

Scale is the residue left behind after evaporation has taken place. This residue is most often a combination of all the solids held in solution, such as lime, alkali, salt, iron, or calcium carbonate. This residue in the boiler means insulation. Insulation is required around the boiler between the outside atmosphere and the boiler, setting and piping. But it should never be allowed to remain between the water and the products of combustion, since it will obviously decrease or retard the heat reaching the water.

The filtering of water will remove only such solids as are held in suspension. These solids consist of vegetable matter such as leaves and bits of wood, silt, sand and other foreign matter picked up as the water passes over or through the ground. Such substances can easily and readily be removed by passing the water over a filter bed.

Certain other scale-forming substances precipitate with rising temperatures. Many of the carbonates, for example, come out of solution before the water reaches the boiling point, and thus much is accomplished by the boiler feed-water heaters. Yet a feed-water heater will not do all of the work in connection with freeing water from scale-forming elements. It would be possible for the feed-water heater to remove all the scale from water only by complete evaporation, in which event the boiler would be unnecessary. The problem would then be the prevention of scale within the heater.

One of the most common scale-forming elements found in feed-water is calcium carbonate. Waters vary greatly in the amount of this element held in solution. Some contain but a trace while others may contain as high as 25 per cent. Calcium carbonate is not particularly injurious to metals but it does form a scale that greatly reduces the B. t. u. value of the coal. Another common scale is calcium sulphate but since this element precipitates only at a high temperature it is seldom encountered in hospital steam plants.

Calcium carbonate and calcium sulphate are both carried in solution and both escape the work of a filter since they cannot be removed except by heat. Therefore, these are the elements most destructive to the tubes and most costly in terms of fuel. In the smaller steam plants, such as those employed by hospitals, this scale can be removed only by constant attention. No boiler tube should be allowed to go uncleaned longer than twenty-four hours. This statement is made in the face of full knowledge that many hospital engineers clean their tubes no oftener

Adv. page 74

You can save your nurses' time and energy

GAS FOR COOKING in the diet kitchens is a great labor saver. It gives instantaneous heat and permits easy and rapid preparation of broths and other foods.

Pyrofax Gas Service provides gas for the diet kitchens, and in addition for the main kitchen, the laundry and the laboratory. It brings a city convenience to the hospital that is not near a city gas main.

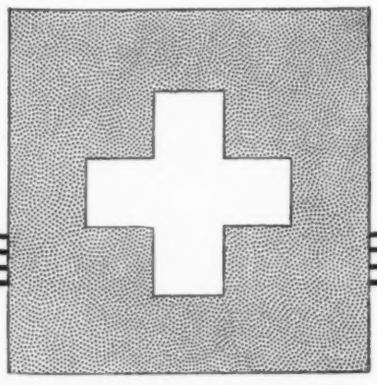
Pyrofax gas resembles natural gas and is shipped to the hospital in steel cylinders. It is non-toxic and burns with a clean, hot flame free from soot or odor. It can be used on any standard gas appliance—ranges, hot plates, Bunsen burners, and laundry ironers.

The Pyrofax installation consists of a substantial enameled steel cabinet which houses the cylinders and fittings. It is placed on the outside of the building and the gas is piped from it through ordinary gas pipe to the stoves, burners and other appliances. It is listed as standard by the National Board of Fire Underwriters.

Any further details will be promptly furnished on request. May we not send you our circular and booklet describing Pyrofax?

CARBIDE AND CARBON CHEMICALS CORPORATION

Carbide and Carbon Building
30 East 42d Street, New York



Pyrofax
TRADE MARK

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The MERCANTILE TRUST COMPANY

ST. LOUIS, MISSOURI

Solicits Applications for Loans on Religious Institutions, Churches and Hospitals

located in the larger cities, where the amount of loan and margin of security is sufficient to warrant us in making an inspection of the property.

Size of loan is limited by value of the security.

We make building loans from architects' plans and specifications, paying contractors as the building progresses on architects' certificates and waiver of liens.

Payments of principal can be arranged over a period as long as ten years. Notes to contain a clause permitting the borrower to repay any portion or the entire amount remaining unpaid from time to time.

Write for further details to

REAL ESTATE LOAN DEPARTMENT

Mercantile Trust Company

Member Federal Reserve System — *Capital & Surplus Ten Million Dollars*

EIGHTH AND LOCUST —TO ST. CHARLES

ST. LOUIS, MO.

FESTUS J. WADE, *President* — J. B. MOBERLY, *Vice-President and Real Estate Loan Officer*

than once a week. Cleaning tubes by pressure is by far the most effective and economical method but this procedure requires a special appliance. Where this is not available cleaning must be done with a hand lance. Firemen will object to this work and shirk it if possible since it is a hot, disagreeable task.

Water softening systems are of great value to the hospital, in removing much of the scale-forming elements without reducing the water to an absolutely pure state, thereby increasing its corrosive action. In but a few instances does the installation of a water conditioning apparatus fail to pay for itself in minimized corrosion and reduction of scale; often the cost of such devices is repaid in less than two years.

Chemical treatment of all water by water conditioners seems the best solution of the problem. And the superintendent or engineer who recognizes this fact and takes steps toward chemical neutralization has progressed far toward the reduction of the fuel bill of the hospital.

WHERE EFFICIENT FIRING MERITS A BONUS

It is not always possible for the hospital superintendent to adopt the practices employed by industrial plants but now and again we learn of some procedure that could be easily paralleled in hospitals with good results. The following is an example.

Posted in the boiler room of a manufacturing company is the following notice:

"A bonus will be paid to firemen according to the percentage of proper operation of boilers as shown by the meters and recording instruments. Red and blue lines running steadily and close together across the face of the chart will be considered high percentage, but wavering lines, or lines separated, will be considered low percentage. Charts will be measured by a planimeter of suitable type for circular charts, and bonuses will be paid as follows: 90-100 per cent perfect, $5 a week; 80-90 per cent perfect, $4 a week; 70-80 per cent perfect, $3 a week; 60-70 per cent perfect, $2 a week.

"At least two boilers (when the load is sufficient) shall be run at 130 per cent of rating, 70 per cent of the time. Fire must be left in proper condition for each succeeding shift. Feed water must be regulated evenly as this has an effect on the instruments. Firemen must report anything needing repair or adjustment."

This system, according to the chief engineer of the firm, has been in operation for nearly three years, and has proved a powerful factor in raising the level of boiler room efficiency and in cutting the coal bills. Furthermore, it has done much to develop team work among the firemen of the various shifts. These benefits, it is believed, reflect economy far in excess of the bonus money paid out. This is evidenced by the fact that nine out of ten bonuses have been on the $4 scale; that the CO_2 content of the flue gases averages 13 per cent as against 8 per cent before the bonus proposal was made; and that the men take greater interest in their work.

Water passed through the feed water treating system with uneven flow cannot be properly treated.

COLORED PIPE DIRECTORY

A plan that is used in most large hospitals but few small ones is that of marking each classification of pipes with a different color. Cold water pipes might be green; hot water, red; gas, blue; vacuum, yellow; oil, black and steam, orange. This saves a great deal of time, especially when repairs are to be made.

This velvety surface can't hold dirt . . .

IN beauty comparable only to the finest enamel, Barreled Sunlight has also been proved the most *practical* paint for fine interiors. White or tinted, it is the choice today for walls and woodwork in hundreds of the most modern buildings.

So finely is the pigment ground in Barreled Sunlight that it produces a satin-smooth, lustrous finish—washable as tile. Its surface has no pores to hold dirt embedded, and no roughness to wear away under repeated washings.

When used in the pure white, Barreled Sunlight is guaranteed to remain white longer than any gloss paint or enamel, domestic or foreign, applied under the same conditions—a guarantee made possible by the exclusive Rice Process of manufacture.

Barreled Sunlight costs less than enamel, covers better, and is easy to apply with brush or spray.

Sold in 55- and 30-gallon churn-equipped steel drums, and in cans from ½ pint to 5 gallons. Where more than one coat is required, use Barreled Sunlight Undercoat first.

Use the coupon to obtain our illustrated booklet, "Interiors of Lasting Whiteness," and a panel painted with Barreled Sunlight.

U. S. GUTTA PERCHA PAINT CO.
Factory and Main Offices
30 Dudley Street, Providence, R.I.
New York—350 Madison Avenue
Chicago—659 Washington Blvd.
San Francisco—156 Eddy Street
Distributors in all principal cities

Barreled Sunlight can be easily tinted

By simply mixing colors in oil with Barreled Sunlight white, the painter on the job can easily obtain any desired shade. In quantities of 5 gallons or over we tint on order at the factory, without extra charge. For tinting small quantities our dealers carry handy tubes of Barreled Sunlight Tinting Colors. They are almost liquid, blending easily and quickly with Barreled Sunlight.

Barreled Sunlight

Reg. U. S. Pat. Off.

U. S. GUTTA PERCHA PAINT CO.
30 Dudley Street, Providence, R. I.

Please send us your booklet "Interiors of Lasting Whiteness," and a panel painted with Barreled Sunlight.

Name .....

Street .....

City ..... State. .....

Less than 1¢ a serving—an ideal food for convalescents

The hospital dietitian has no easy task in providing nourishing, tempting food of unquestioned quality and, at the same time, keeping expenses within bounds.

In a table of Relative Economy of Foods, compiled by the Dietetic Bureau, Boston (quoted from the American Journal of the Medical Sciences), Cream of Wheat is featured as "an economical food" for hospital use.

One box of Cream of Wheat gives 40 generous servings at a cost of less than 1c a serving!

Physicians advise Cream of Wheat as an ideal food for convalescents and children because of its rich carbohydrate content and its quick, easy digestibility.

Its quality is always the same because of a uniform manufacturing process and because it is protected from all contamination by its triple wrapped-and-sealed box.

There are many new and delightful ways to serve Cream of Wheat—ways which tempt capricious appetites. Below is suggested a nourishing, delicious Cream of Wheat dessert which patients will appreciate. Send for recipe booklet, "50 Ways of Serving Cream of Wheat."

APPLE PUDDING

2 cups cooked Cream of Wheat	3 eggs
2 cups milk	1 cup sugar
3 apples cored and sliced	Nutmeg

Mix Cream of Wheat with milk, beaten egg and sugar. Pour ⅓ the Cream of Wheat mixture into a buttered baking dish, cover with apple rings, sprinkle with sugar and nutmeg and dot with butter; repeat twice, making three layers of the pudding with apples over the top. Bake in a moderate oven one-half hour and serve hot or cold with cream

Cream of Wheat

Cream of Wheat Company, Minneapolis, Minnesota
In Canada, made by Cream of Wheat Company, Winnipeg

FOR THIRTY YEARS A STANDARD FOOD ON PHYSICIANS' DIETARY LISTS

© 1926, C. of W. Co.

THE CARE AND CLEANING OF FLOORS AND WALLS

The economies that are today being effected in many hospitals through the efficient use of the mop and the cleaning cloth have proved so practical and so workable as to justify the adoption of similar cleaning methods in institutions throughout the country. Although cleaning has not yet reached the exactness of a science, nor has there yet been evolved an exact standard or system of cleaning, there are widely proved procedures worthy of consideration.

The average hospital of today contains many square yards of rubber, composition and tile floors, and even greater areas of oil painted and enameled surfaces. Cleaning methods that remove the daily soil from floors without leaving them slippery, without dulling their color, or shortening their life are of both direct and indirect profit. The same is true of still other cleaning methods that after some months of use leave painted surfaces bright and clean, unmarred and unscratched, and with no signs of dulling or yellowing.

There is no discounting the fact that efficient cleaning depends to a large degree upon efficient supervision. The method of operation is also an important factor in doing this type of work. But, no matter how careful the supervision or how effective the method used, cleaning is only as efficient as the cleaning material used.

Let us then consider a brief summary of certain factors found in efficient cleaning materials—materials that save time and labor, that are not harmful or injurious and yet can be economically used.

Mechanical Cleaning Preferable to Chemical

For the cleaning of floors of all kinds one requisite is paramount—that the cleaned floor be neither slippery nor sticky. Slippery and sticky floors are dangerous. As it is impossible to produce any other but this condition with cleaning materials containing an excess of grease or caustic alkali, this type of cleaning material is removed from consideration.

It has been learned in but comparatively recent years that mechanical cleaning action is preferable to chemical action. Eliminating marble, many of the other floorings contain coloring. Cleaners containing an excess of alkali naturally clean chemically, and frequently "bleed" colors and cause them to run or fade.

Furthermore, mere chemical cleaning is injurious to any surface, as free alkali will in time attack rubber, composition, tile and other surfaces, softening such materials, attacking the cement in which tile is laid, and materially shortening the life of the floor. Chemical cleaning is in time certain to result in stain or discoloration through the reaction of the free alkali present.

But, you immediately say, "mechanical cleaning," does that mean scratching and scarring cleaned surfaces? Most certainly not.

To differentiate it from sanitary cleaning and scouring, floor cleaning is classed by cleaning material manufacturers as abrasive cleaning. This type of cleaning involves the use of an abrasive material. Many so-called abrasives are not suitable for the cleaning of either floors or walls, as they are crystalline in form and scour with a grinding action that is harmful.

Perhaps the most successful of the now known abrasives is one that is flaky in form, breaks down under pressure, and does not scratch or dull even the highest polished surfaces. This abrasive is a volcanic ash that has been given frequent reference in the report of the special

A real ginger ale, made from real Jamaica ginger

"CANADA DRY"

Always look for the name "Canada Dry" on the bottle cap to be sure of the original.

WHEN you order a carbonated beverage for your hospital or serve it to your patients you want to be sure that you are buying a beverage that you can depend on absolutely. You can rely on that when you buy "Canada Dry."

For years and years this fine old ginger ale has been served in the leading hospitals in Canada and it has duplicated that record in the United States ever since it was first brought over the border and introduced to this country a few short years ago.

The reason is simply because "Canada Dry" is a real ginger ale, made from real Jamaica ginger, and is one ginger ale that does not contain capsicum in any form.

Because of this, "Canada Dry" is the invariable choice of many physicians whenever the case management calls for a beverage of unquestioned purity and quality.

You will find too that it is a most delightful beverage to serve with meals and between meals, and that your patients appreciate your judgment and consideration in serving a beverage which they like so much and which is now so well-known the wide world over.

We will gladly send a sample bottle to hospital superintendents and dietitians

"CANADA DRY"

Reg. U. S. Pat. Off.

Does Not Contain Capsicum

Extract imported from Canada and bottled in the U. S. A. by Canada Dry Ginger Ale, Incorporated, 25 W. 43rd St., New York, N. Y. In Canada, J. J. McLaughlin Limited. Established 1890.

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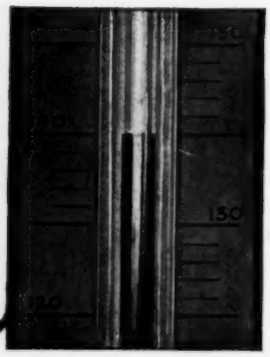


Proved ...by the thermometer test!

Which holds the heat better —a wood washer or a metal washer? A series of tests by Henrici Engineers gives the answer to this interesting question.

THESE tests were conducted on washers in actual plant operation. For each test, a Henrici metal washer and a standard wood washer of the same size were filled with the same amount of water, at the same temperature, under the same conditions. A thermometer was placed in each washer, and the machines were started.

In every test, the thermometer in the wood washer showed an equal drop in temperature to that in the Henrici Washer. In other words, the water in the metal washer stayed hot as long as the water in the wood washer—the heat loss through radiation was the same in each machine.

Write for more information about these tests. The results prove the heat saving qualities of Henrici Metal Washers as compared with wood washers—and show why the metal washer equipped washroom is not only as cool but more economical than the wood washer equipped washroom.

HENRICI LAUNDRY MACHINERY CO., Boston 26, Mass.

HENRICI WASHERS

SPEEDY – ECONOMICAL – DURABLE

committee on cleaning of the American Hospital Association. As there are many kinds of volcanic ash, care should be taken to obtain one that easily breaks down under pressure. An abrasive of this type permits of mechanical cleaning that is not injurious.

Not only will a cleaning material meeting the above requirements conserve and lengthen the life of floors and provide a safe and pleasant cleanliness, but it will reduce labor and time changes to a minimum.

In general, the most efficient method for cleaning hospital floors has been found to be the two mop, two pail method; one mop for applying the cleaner and the other for rinsing. All floors should be carefully brushed before washing. For cleaning of badly soiled floors the cleaning material may be sparingly used direct on the floor, scrubbing with a soft brush or mop and rinsing and drying with the second mop. Avoid the use of an excess of cleaner.

For ordinary mopping the ideal cleaning material can be efficiently used in solution, provided the mop or other cleaning implement is plunged to the bottom of the pail for each application. When the mop is thus immersed the abrasive material present is fully put into suspension, gets on the mop, and when transferred to the floor gives a scouring action without scratching.

Change Water Frequently

Apply the cleaning solution to the floor with the first mop, wringing out the mop until it barely drips after each immersion in the cleaning solution. Mop small sections of about fifty square feet at a time, going over each space until all dirt and soil is loosened. Follow this with the clean mop from the second pail. Use only clean water for this operation, thoroughly wringing out the mop each time before using. The importance of frequently changing the water in the second pail should be emphasized to the workers, for if this is not done the removed soil and dirt is simply returned to the floor.

And just as time, labor, and expense may be saved in the care and cleaning of floors, and their life and beauty preserved so, too, needless expense may be eliminated in the care and cleaning of painted surfaces. Most important of these savings is the frequency with which the inconvenience and cost of repainting may be deferred by the use of proper cleaning methods and suitable cleaning materials.

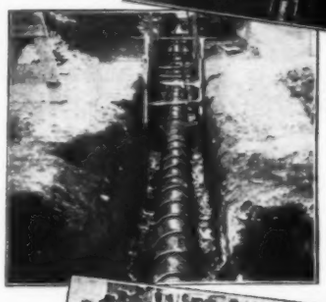
Although there is little similarity between mopping floors and washing painted surfaces, nevertheless the cleaning materials that can be efficiently used for each purpose are found to have many points in common.

Clean floors cannot be sticky or slippery; neither should washed painted surfaces bear an unrinsed grease or alkali film. Walls that are greasy are neither clean nor sanitary, and both attract and hold dust and soil. A grease or alkali film not only brings about yellow discoloration but such a film also attacks the oils that are the holding body of the paint. Despite the beliefs of some people, the cleaning material that contains soap stock in any appreciable amount is not suitable for the washing of painted surfaces.

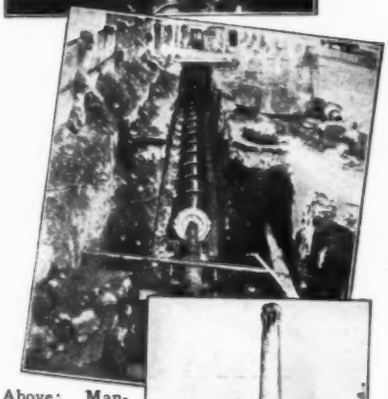
Then, too, mechanical cleaning is just as important for wall cleaning as for mopping floors. Cleaners that are strictly chemical in nature are frequently very resistant to rinsing and in time this unrinsed chemical film dulls the luster and attacks the colors of painted surfaces. But, here again, mechanical cleaning must not involve lining or scratching. The same abrasive referred to by the special committee on cleaning of the American Hospital Association is particularly adapted to the washing of

The Homeopathic Hospital Group, Rochester, N. Y., heated by steam brought 4,000 ft. by Ric-wiL Conduit.

Ric-wiL Base Drain installed. It is simply set in place on graded trench bottom.



Ric-wiL installed. broken stone in place, ready for backfill.



Above: Manhole to be built here.

Lawn St. Steam Plant of The Rochester Gas & Electric Corp., which supplies the steam.

Guaranteed Heat from a $1,000,000 heating plant

THE Homeopathic Hospital of Rochester, N. Y., facing the necessity of re-vamping and increasing the capacity of its heating plant because of the completion of new hospital buildings, decided, after investigation, to buy its heat from the fine new Lawn Street Steam Plant of The Rochester Gas & Electric Corp.

This guarantees the Hospital an unfailing supply of heat from a million dollar plant built scientifically to produce steam with the greatest economy.

Running 4,000 feet of connecting pipe through Ric-wiL Underground Conduit further increases the guarantee. And it assures transmission of the steam with the least possible loss.

Labor cost of installing Ric-wiL was only 45 cents per foot. Actually the entire installed cost of Ric-wiL Conduit is often less than that of ordinary or home-made systems.

For economy, efficiency and long service, be sure to specify Ric-wiL for your next underground steam pipe lines. Catalog on request.

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UNDERGROUND CONDUIT

It meets the dictates of modern medical practice

KELLOGG'S ALL-BRAN is most widely employed to relieve constipation —but it is equally valuable in **preventing** constipation and promoting regular, natural elimination of the intestinal tract. Preventive medicine of the highest order!

Physicians recognize in Kellogg's ALL-BRAN a valuable aid and ally in combating the evil of constipation. They know that Kellogg's is 100% bran and for that reason they can rely upon its accomplishing definite, complete results. That is why ALL-BRAN is recommended by so many of the profession in both mild and chronic cases.

Patients like Kellogg's ALL-BRAN and like to "take it." Kellogg's is cooked and krumbled by a special process that gives it a delicious, nut-like flavor. A delightful breakfast dish. There are countless appetizing ways of serving it.

Sold by all grocers. Served everywhere. Made by Kellogg in Battle Creek, Michigan.

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the original ALL-BRAN

—ready-to-eat

painted surfaces because it never injures or harms in any way and breaks down under pressure.

The most important advantage to be secured from the suitable cleaning of painted surfaces is that repainting can frequently be deferred many months. The paints that are used in hospitals are quality materials, and painted surfaces, if properly handled, can repeatedly be washed clean without dulling the luster, without attacking the color in any way, and without removing any of the paint.

Then too, aside from the expense, repainting causes much inconvenience, produces odors unpleasant to hospital inmates, and removes from use all rooms in which repainting is being done.

In washing badly soiled painted surfaces it may be necessary to use the cleaning powder by direct application. In general, however, such washing is done by using the cleaning material in solution. Experience has proved that it is well to caution help against using too warm water for this work, as heat in itself will seriously injure painted surfaces.

Sheep Sponges for Painted Surfaces

Sheep sponges are advocated for the washing of painted surfaces, as the mouths of the sponges take up any harsh particles that might be encountered in the washing process. At the same time these mouths provide some degree of suction which aids the friction of the cleaning action. And since the sponge is soft it does not in itself scratch or wear away the paint or dull its luster as do many washing methods.

It is advantageous to wash but a small portion of each painted surface at a time, rinsing well before beginning on a new section. For washing walls, streaks may be eliminated by working from the bottom to the top. After thoroughly rinsing buff the clean surface with a soft cloth.

Cleaning costs and cleaning methods may never be entirely standardized. But this fact does not apply to cleaning materials, and many hospitals have profited by selecting their abrasive cleaning powder on a basis somewhat similar to that outlined above.

GETTING AN ACCURATE INVENTORY

The superintendent of a California hospital has devised a system for keeping an inventory that takes into consideration every piece of equipment in the building. Every chair, table, dresser, curtain, lamp, bed or anything that does not need constant replacing, is marked with a number. In some cases tags are used, in others, paper stickers, while in the case of mattresses and curtains, fabric numbers must be sewn in. A chair might be given a number of A-1; tables B-1, Mattresses C-1. In taking the inventory in a room it would only be necessary to write the letter that stands for the product and then the number of that product. By checking back in the records the superintendent can tell when the piece was purchased and how long it has lasted. The equipment is not numbered until it goes into service.

INDIVIDUAL TOASTERS SAVE BREAD

A private hospital in Ohio is giving patients service that comes very close to home comfort. On each tray is a small electric toaster that plugs into the socket near the bed. The patient can then toast the bread to any degree of hardness and eat it hot. This has been found to save bread and to build good will.

Contract Early for Fall Delivery

Now is the time to consider your canned food requirements for next year. By ordering now, you can get full delivery, exactly as you order and at a fair price.

If you have used this Sexton service before, you know how easy it is to rid yourself of all risk and anxiety as to prices or quantities by contracting this Spring for delivery from next Fall's pack. It is desirable to schedule your needs promptly. It guarantees you a reasonable price no matter how large or small the crop may be. Those who placed their contracts early last year secured the greatest protection.

Check your requirements against the lists shown here. Then write us, giving a summary of your needs and we shall be glad to have our salesman in your territory call and present samples and quotations.

Edelweiss Canned Fruits

Apples, quartered
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Apricots, halves
Apricots, halves, peeled
Apricots, sliced
Blackberries
Blueberries
Cherries, Black
Cherries, Red, pitted
Cherries, Royal Ann
Crabapples, spiced
Cranberry Sauce
Figs
Asst. Fruit for Salad
Gooseberries
Grapefruit
Grapes, Muscat
Grapes, Seedless
Loganberries
Peaches, halves, White Cling
Peaches, whole, Melba
Peaches, halves, Yellow Cling
Peaches, sliced, Yellow Cling
Peaches, halves, Yellow Free
Peaches, Sweet Pickled
Pears, halves, Bartlett
Pears, whole Melba
Pears, Sweet Pickled
Pineapple, Hawaiian, sliced
Pineapple, Hawaiian Tidbits
Pineapple, Hawaiian, crushed
Plums, Egg
Plums, Green Gage
Plums, Japan
Plums, Prune
Plums, pitted Prune
Prunes, prepared
Raspberries, Black
Raspberries, Red
Rhubarb
Strawberries

Edelweiss Canned Vegetables

Asparagus Stalks
Asparagus Tips
Asparagus Salad Points
Asparagus, Cut
Beans, Baked, Tomato Sauce
Beans, Baked, Plain
Beans, Lima
Beans, Red Kidney
Beans, Whole Refugee
Beans, Cut Refugee
Beans, Golden Wax
Beans, Cut Wax
Beet Greens
Beets, Whole
Beets, Diced
Beets, Quartered
Beets, Sliced
Carrots, Diced
Carrots, Whole
Carrots, Quartered
Cauliflower
Corn, Crosby
Corn, Little Kernel
Corn, Golden Bantam
Corn, Shoepeg
Corn on the Cob
Hominy
Mixed Vegetables
Okra, Cut
Okra, Whole
Parsnips, Sliced
Peas, extra sifted early June
Peas, sifted early June
Peas, early June
Peas, Sweet Wrinkled
Peas, Telephone
Pumpkin
Sauer Kraut
Spinach
Squash
Succotash
Sweet Potatoes
Tomato Puree
Tomatoes

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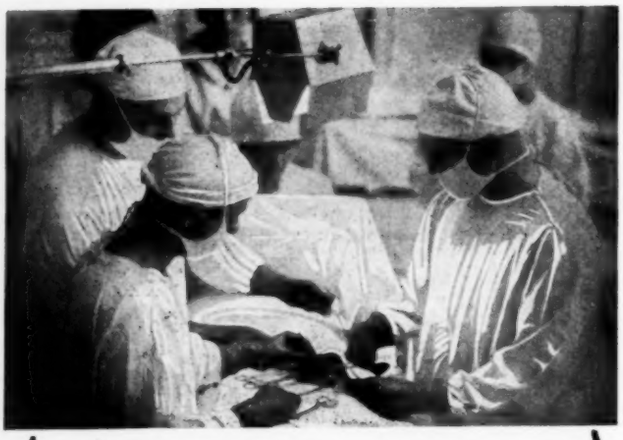

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to you we will place in your hospital, a Surgeon's Operating Ventlite on a ten-day trial.

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STOPPING HEAT LEAKS IN BUILDINGS

If you are called upon to find the cause of drafts in rooms or buildings, here are some of the things to look for, according to a recent bulletin of the U. S. Department of Commerce:

Cracks around windows and doors, broken window panes, and unprotected heating pipes. All such places should have prompt attention. Go over all windows to see that putty is in place around the panes.

The use of weather strips will take care of most of the cracks around a window, and the saving in coal will be well worth while in a large number of buildings.

Look to the outside doors. Doors are often poorly fitted and air passes freely both above and below them. The crack below the door is often so large that cold air sweeps across the floor, keeping the room cold. A strip of cloth or felt nailed to the floor or to the door will keep out much of the cold. Hinges are not always well fitted into the door and frame, allowing much cold air to enter the building. This can be remedied by resetting the hinges. Basement doors and windows should be examined and made as tight as those in the rest of the building.

The covering of the furnace and of steam and water heating pipes, especially in the basement, is advisable. Although insulation may be expensive it is well to consider the cost of fuel and the saving that can be effected.

The locking of windows when closed, the drawing down of shades, the turning off of heat in an unused room or at night when the windows are open, periodical care of heating equipment, all require a little time and thought, but will save heat.

When fire places and stoves are not in use the dampers should be closed.—*Heating and Ventilating Magazine.*

LACQUER WILL DRY IN HALF-AN-HOUR

A brushing lacquer that becomes dry and hard and ready for use in half-an-hour after application is now available to hospitals.

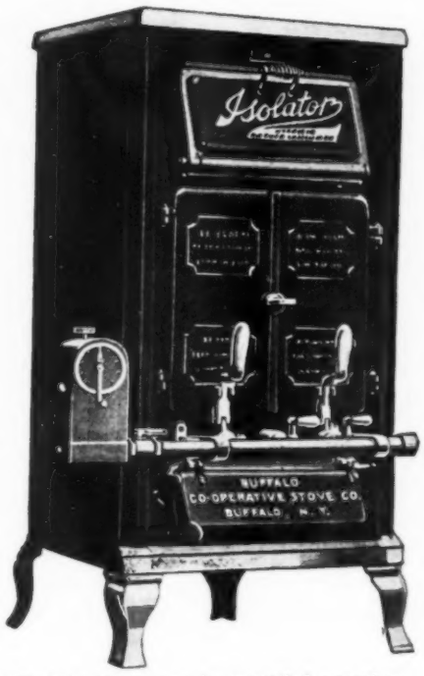
It is obvious that through the use of this lacquer the inconvenience attendant upon the removal of certain pieces of equipment or the closing off of a ward for painting is eliminated.

The lacquer is especially adapted for use on beds, which may be painted without removal from the room or ward and be occupied in less than half-an-hour. This is possible mainly because the lacquer does not have the disagreeable turpentine odor that lingers after the use of many other paints and varnishes. The lacquer is equally successful for walls and floors, which may be used while the painting is being done, and the painted surface may be walked upon fifteen minutes from the time the lacquer is applied.

Trays may be refinished advantageously with the brush lacquer in place of enamel, as the lacquer does not stain.

USE OF TIME STAMPS

Time stamps have a definite and worth while place in every hospital, according to the superintendent of a New York institution. He uses them in the office for stamping all the telephone calls for doctors; in the receiving room for the invoices in the mailing department for all mail; in the laundry for checking laundry lists in and out, in the engine room for reports and for the reports from the housekeeper. This puts the service departments on their toes and makes it impossible for one person to shift the blame to the wrong person or department.



Portable type—can be installed anywhere.

THE Isolator
REFUSE CONSUMER

Showing interior. Receptacle easily accessible.

Consumes liquids or solids without odor or smoke

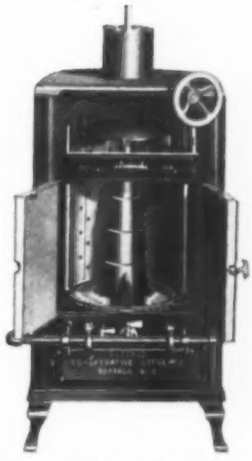
The Isolator reduces ALL hospital waste to ashes in a few minutes. Liquids need *not* be drained nor is it necessary to pack or prepare waste in any way. Simply deposit in the Isolator and in a few minutes everything is consumed.

We make all types—portable, built-in, etc. Can be installed on any floor—one in each ward is a good plan.

Over 150 hospitals are completely equipped. Isolators have found a place in over 150 institutions; a few are listed below.

Physicians Hospital	**Rocky Ford, Colo.**
Soldiers Home Hospital	**Sawtelle, Calif.**
Buffalo City Hospital	**Buffalo, N. Y.**
Grand View Sanitarium	**Oil City, Pa.**
Lucas County Home	**Toledo, Ohio**
Hudson River State Hospital	**Poughkeepsie, N. Y.**
Rockefeller Foundation	**New York City**

Whether or not you are considering installations now, we will be glad to give further facts and prices. Our engineering department is, of course, at your disposal. Write—there is no obligation.



The Amherst Incinerator especially adapted for kitchen use. Burns up kitchen garbage almost instantly. Made by the makers of Isolators.

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Isolators and Amherst Incinerators are manufactured by The Buffalo Co-operative Stove Co.

Fuel Saving of 20 to 40%

Quiet Rooms and wards~ Even Temperature Patient Comfort.

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Book Reviews and Current Hospital Literature

PERSONAL HYGIENE FOR NURSES

By JOHN WYMOND MILLER BUNKER, Ph.D., Associate Professor of Biochemistry and Physiology, Massachusetts Institute of Technology; Lecturer in Physiology, the Boston School of Physical Education, and CLAIR ELSMERE TURNER, M.A., C.P.H., Associate Professor of Biology and Public Health, Massachusetts Institute of Technology; Associate Professor of Hygiene, Tufts College Medical and Dental Schools.*

This interesting volume on personal hygiene for nurses holds the attention of the reader and discusses the extensive field of hygiene in a thorough manner. Its chapters deal with food and digestion, the mouth, the alimentary tract, the nervous system, muscular exercise, feet, sleep, cleanliness and nutrition, and touch on other equally important phases of personal hygiene. Bunker and Turner have succeeded in treating a somewhat dry subject in a readable manner. Each chapter delves into the material on its topic, and offers significant data by way of rules and suggestions, which are more likely to be retained and practiced because of the unusual method of presentation.

A TEXT-BOOK OF PSYCHOLOGY FOR NURSES[1]

By MAUDE B. MUSE, R.N., A.M., Instructor in Nursing Education at Teachers' College, Columbia University, New York.

In judging any new textbook for nurses, it seems fair to ask certain questions and use the probable answers to these questions as the basis for one's conclusions. In the case of this new psychology, the reviewer has used the following four questions in this way: (1) Does this meet an actual need; (2) will it function occasionally or frequently; (3) will it help the student nurse to make good from the standpoint of her patients, her co-workers, and herself; (4) is it interesting or deadly dull?

As nearly as one can imagine the probable answers to these questions, it is preeminently safe to predict an overwhelming welcome for Miss Muse's book. For years past there has been a growing need for such a textbook, and because the applications of underlying principles are to the daily problems of a nurse's work, problems that in the nature of things are bound to recur constantly, it may prove a rival to the oft-consulted medical dictionaries that are pocket companions of so many students.

We are constantly told that intelligent understanding of ourselves and others is fundamental to tolerance, cooperation and leadership. The mastery and application of the principles embodied in this textbook will go far to give student nurses the "intelligent understanding" that is so necessary a part of their educational equipment. Moreover, such understanding of one's self and others leads to the kind of success that is one of the enduring satisfactions of life.

*C. V. Mosby Company, St. Louis, Mo., 1924.
1. W. B. Saunders Company, Philadelphia and London, 1925.

"PYREX" *flasks and beakers are standard equipment everywhere.*

In the Hospital Laboratory the glassware used *must be dependable*

BREAKAGE of laboratory glassware is always an annoyance—and often becomes an item of considerable expense.

But in the hospital laboratory the breaking of a piece of glassware—and the loss of its contents—may have much more serious, more far-reaching effects than time and effort wasted.

Hospital authorities, as well as leading industrial research chemists, recognize the unquestioned superiority of Pyrex laboratory ware under exacting conditions.

Highly resistant to extreme heat, to sudden cooling and to breakage in handling, and of high chemical stability, *Pyrex is used wherever absolute dependability is vital.*

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But Pyrex is also the most practical equipment to use for daily routine work. Due to its remarkably low coefficient of expansion, Pyrex ware can be made much heavier, much sturdier than ordinary apparatus. It will stand up under constant handling, constant sterilizing—will be giving service long after other glassware would have been replaced several times.

Further information regarding the many hospital uses for Pyrex will be furnished upon request.

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Tests by experts have shown that foods actually *bake better, more evenly*, in Pyrex ovenware. In the diet kitchen, the convenience of baking and serving in the same dish, the greater ease of keeping Pyrex spotlessly clean, mean greater efficiency. *And foods keep hot longer in Pyrex.*

PYREX NURSING BOTTLES

Like all Pyrex ware, these nursing bottles will not break nor crack during sterilization. Made in wide mouth and narrow neck styles.

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Iroquois China is used in Clifton Springs Sanitarium

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A few hospitals using Iroquois China are: Ingalls Memorial Hospital, Chicago; Monmouth Hospital, Long Branch, N. J.; Chicago Memorial Hospital, Lakeside Hospital, Chicago.

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With the increase in the number of recorded diabetics the need for a suitable bread substitute is emphasized.

The wide acceptance of Diaban by the hospitals throughout the country indicates that here at last is a flour that contributes in large measure to the solving of the dietetic problem in diabetes.

Superintendents are invited to write for free sample, recipes and analysis.

MACDOWELL BROS.

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and Brockville, Ont., Can.

In answer to the fourth question, I wonder if there are not many who like the writer will start to glance through the book, and find themselves reading it with as much, or possibly more, interest than is aroused by many novels. For the book has "leading on" qualities that hold one's interest until the last page is reached and then insures the re-reading of many portions.

In the first chapter it is stated that the nurse "must continue to learn, unlearn and relearn as long as she practices her profession." It is obvious that Miss Muse set herself the task of helping the nurse to do this very thing. It is heartening to find she has succeeded so well, and a privilege to welcome her to the small but growing company of nurses who write textbooks for nurses.

NURSES' HANDBOOK OF DRUGS AND SOLUTIONS

By JULIA C. STIMSON, R. N., Major, Superintendent, Army Nurse Corps, Washington, D. C.[1]

This little book, to quote the author, "is intended to make the path easy for nurses in preparing themselves for their examinations on the subject for state registration." As this seems to be one of the most difficult subjects for nurses, we would suggest that she make this book one of her best friends and know it thoroughly.

It contains an alphabetical list of the more important definitions commonly used in materia medica; methods of applying drugs, internally and externally; convenient table of centigrade and fahrenheit equivalents; several pages devoted to a few clear, concise, simple rules in changing solutions (this should be a boon to many a nurse); and the usual classification of drugs with their source, action, preparation and dosage, etc.

It is a handy little book for ready reference, but from the teacher's viewpoint we wonder if the addition of more problems would not make it more valuable, as nurses seem to need this drill.—C. E. G.

A TEXTBOOK OF PHYSIOLOGY

By WILLIAM D. ZOETHOUT, Ph.D., Professor of Physiology, Chicago College of Dental Surgery (Loyola University) and in the Chicago Normal School of Physical Education.[2]

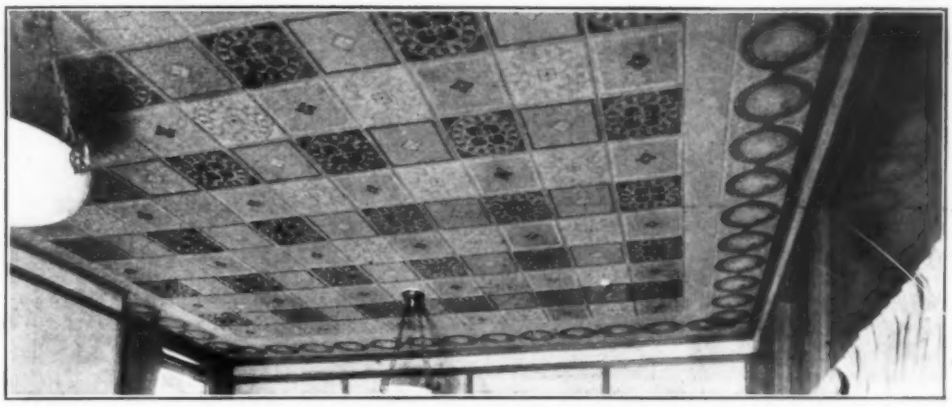
Dr. Zoethout's textbook is intended to bridge the gap between the inadequate text and the voluminous physiology in which the student becomes buried under the debris of technical terminology. The book is clearly and concisely written and, above all, the different physiological phases are presented with their true relationship to, and are not isolated from, the other component functions as they are in too many textbooks.

The author stresses the practical side of physiology and has woven the chapters under discussion both by presenting that which has been mastered as well as that which is yet unknown or unexplained. The book lays the foundation upon which all rational personal hygiene must be based.

TUBERCLE BACILLUS INFECTION AND TUBERCULOSIS IN MAN AND ANIMALS. A biological and experimental study, with thirty-one text illustrations and twenty-five colored plates, by Albert Calmette, associate director of the Pasteur Institute, Paris. Authorized translation by Willard B. Soper, M.D., Saranac Lake, N. Y., and George H. Smith, Ph.D. School of Medicine, Yale University. Williams & Wilkins Company, Baltimore, Md., 1923.

1. M. Barrows & Company, Boston, 1925.
2. C. V. Mosby Company, St. Louis, Second Edition, 1925.

Beauty . . Comfort . . Quiet



The ceiling and walls of this reception room are of Acousti-Celotex, producing a quiet, heat-insulated room, and with the decorated ceiling, a colorful, beautiful effect

NOW these THREE essentials of the modern hospital can be had from ONE material

Hospitals have long known the curative value of *quiet* rooms. And they go to great lengths to give their patients *comfort*.

Now they can have these aids to convalescence for their patients plus *beauty*.

The above photograph shows a reception room with walls and ceiling of Celotex. Color and pattern have been used to decorate the ceiling. The result is a beautiful, comfortable, quiet room that is better seen than described or pictured.

For Quiet

Celotex is lumber made from cane fibre. It practically stops heat, cold, wind and moisture. It deadens sound.

A special form, Acousti-Celotex, has remarkable sound-quieting qualities. It *absorbs* sound and is especially useful in delivery rooms, nurseries, elevator shafts, private rooms, kitchens and corridors as well as in reception rooms and other places where noise is unavoidable.

For Comfort and Fuel Saving

As sheathing, Celotex replaces wood lumber and building paper. It also takes the place of lath on inside walls, where plaster is applied directly to its surface. Or it can be painted, enameled or covered with any suitable fabric. As roof insulation it prevents condensation of moisture.

Celotex keeps out heat in summer, cold and draughts in winter. It improves the building, cuts repair costs and reduces heating cost about ⅓.

For Beauty

Architects and decorators strive hard to achieve a textured wall finish such as Celotex has naturally. Beautiful color effects can be obtained, too, because Celotex can be painted, enameled or covered with any suitable fabric.

For Old and New Buildings

Celotex may be used in buildings already constructed as well as in new buildings. It costs little, yet gives great advantages over other materials.

Ask your architect, consultant, contractor or lumber dealer to tell you more about Celotex. All lumber dealers can supply it. Building authorities advise its use in modern hospitals.

The expert engineers of our Acoustical and Service Departments will also co-operate in working out the proper uses of Celotex in your institution. (Send building plans for scientific analysis, furnished at no cost or obligation.)

Free Booklets

Mail coupon for free booklets describing uses and advantages of Celotex Insulating Lumber and Acousti-Celotex.

Look Ahead!

Leading medical authorities agree that the hospital which does not provide its patients with the comfort obtained by even temperatures and freedom from disturbing noise will soon be behind the times.

Celotex has now made these essentials practical at little or no extra cost.

THE CELOTEX COMPANY, CHICAGO, ILL

Mills: NEW ORLEANS, LA.

Branch Sales Offices in many principal cities

[See telephone books for addresses]

CELOTEX
INSULATING LUMBER

THE CELOTEX COMPANY, Dept. T-283
645 N. Michigan Ave., Chicago, Ill.
Please send more information about Celotex Insulating Lumber and Acousti-Celotex.

Name .....

Hospital ..... State .....

City .....

Mod. Hosp. 3-26

News of the Hospitals and Sanatoriums

The department of "News of the Hospitals and Sanatoriums" is prepared each month just prior to going to press, for the purpose of presenting the latest authentic news regarding hospital construction, changes in personnel, and other matters in which the hospital field is interested. So far as we can ascertain, the sources of our information, while not guaranteed, are reliable.

Arkansas

Fire Destroys State Tuberculosis Hospital.—Fire recently destroyed the hospital building of the Arkansas State Tuberculosis Sanitarium, Booneville, at a loss of about $40,000, according to Dr. John Stewart, superintendent.

California

Mercy Hospital Elects Staff President.—Dr. Thomas O. Burger, San Diego, has been elected president of the staff of Mercy Hospital, San Diego, for 1926.

Fireproof Hospital Buildings.—According to an amended building ordinance which has been signed by the mayor of Los Angeles, the hospitals in that city must either close or occupy fireproof buildings within the next eighteen months.

Resigns as Napa Hospital Superintendent.—Dr. J. M. Scanland, formerly superintendent of the Wyoming State Hospital, Western Springs, has resigned his position as superintendent of the Napa State Hospital for the Insane, Napa, and will enter private practice.

Former Superintendent Honored.—The eightieth birthday of Dr. Richard S. Dewey, Pasadena, was celebrated by members of the Sigma Phi fraternity living in Southern California. Dr. Dewey was formerly medical director of the Milwaukee Sanatorium, Wauwatosa, Wis., and previous to that was in charge of the Illinois State Hospital, Kankakee, Ill.

District of Columbia

Veterans' Hospitals to Receive $100,000,000.—A building program to cost more than $100,000,000 for permanent barracks and hospitals for many thousand soldiers will soon be begun by the war department, following the passage of the Wadsworth-Hill bill. The Letterman General Hospital, San Francisco, and the Walter Reed Hospital, Washington, will benefit to the extent of $5,037,000.

Georgia

Ridley Appointed Macon Hospital Head.—Dr. Charles L. Ridley, health officer of Macon and Bibb counties, was recently elected superintendent of the Macon Hospital, Macon, replacing Rev. C. Rebel Massenburg.

Illinois

Dr. Abt Appointed at St. Luke's.—St. Luke's Hospital, Chicago, recently appointed Dr. Issac L. Abt as attending physician in the department of diseases of children.

Let Contracts for Illinois Masonic Hospital.—Contracts have been let for the construction of a seven-story addition to the Illinois Masonic Hospital, Chicago.

West Suburban Hospital Plans Addition.—The West Suburban Hospital, Oak Park, has prepared plans for the erection of a $350,000 addition to the hospital building.

Bequest of $100,000 to Highland Park Hospital.—By the will of Mrs. Edith McGregor Adams, the Highland Park Hospital, Highland Park, recently received a bequest of $100,000.

Break Ground for American Hospital Addition.—Ground was broken and construction was recently commenced for the erection of a four-story, fireproof addition to the American Hospital, Chicago.

Dr. McLin Transferred to Sheridan, Wyoming.—Dr. Thomas G. McLin, formerly of Jacksonville, has been transferred to the U. S. Veterans' Bureau Hospital, Fort MacKenzie, Sheridan, Wyoming, where he will be clinical director.

Hospital Derives $7,000 from Benefit.—According to Mrs. Charles H. Moody of the hospital board of the Women's and Children's Hospital, Chicago, a recent benefit concert brought in an amount in excess of $7,000 which will be devoted to the charity work of the institution.

North Chicago Hospital Plans Six-Story Addition.—Plans are being drawn and work will begin shortly on a $350,000 six-story addition to the North Chicago Hospital, Chicago. The new building, which will be in the rear of the present structure, will contain a heating plant, dining rooms and laundry and will provide accommodations for sixty patients. One floor is to be devoted to obstetrics and surgery.

Iroquois Memorial Hospital Treatments.—An average of about 9,000 treatments are given in a year in the Iroquois Memorial Emergency Hospital, Chicago, according to Dr. Ralph B. Cobb, superintendent. These are chiefly accident and emergency cases happening in the downtown district. Twenty-two years ago the Iroquois Theater disaster occurred and a memorial meeting was held December 30, at the hospital.

Schweppe Heads St. Luke's Board.—Dr. Charles H. Schweppe was chosen president of the board of trustees of St. Luke's Hospital, Chicago, at the annual meeting in January, succeeding John A. Spoor, who became chairman of the board. All the present directors were re-elected. Louis R. Curtis, vice-president of the board, and director of the hospital, stated that a record number of 471 patients, the largest registration in the history of the hospital, were listed on January 15.

Indiana

Morgan Appointed Superintendent.—Benjamin Morgan has been appointed superintendent of the Marion County

WARD, WELLS, DRESHMAN & GATES

ORIGINATORS OF INTENSIVE PLAN OF FUND RAISING NOW IN UNIVERSAL USE—LONG SUCCESSFUL EXPERIENCE. ESTABLISHED CLIENTELE. RELIABILITY ASSURED. NATION-WIDE REFERENCES.

CONSULTATION GLADLY FURNISHED ON REQUEST WITHOUT COST

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New York City

612 WRIGLEY BLDG.
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Steel Windows Especially Designed For Modern Hospitals

Receiving Hospital and Nurses Home, Detroit, Mich. Carey & Esselstyn, Architects and Engineers.

IN THE matter of windows, you can meet the demands for hospital buildings most completely with Truscon Steel Windows. They have been designed to furnish ample health-giving daylight and natural ventilation. And in addition, incorporate the factors of durability, cleanliness, and extreme ease of operation. You choose the best when you choose Truscon Steel Windows. There are types to meet every purpose and every architectural design, including Solid Steel Double Hung Windows, Center Pivoted, Architectural Projected, Counterbalanced, Donovan Awning Type, and Casements. Truscon Experts will gladly assist hospital boards and superintendents in the selection of the best and most economical window for their use.

Write for complete literature

TRUSCON STEEL COMPANY, Youngstown, Ohio

Warehouses and Offices in All Principal Cities
Foreign Trade Division, New York
The Truscon Laboratories, Detroit, Mich.
Trussed Concrete Steel Co. of Canada, Ltd., Walkerville, Ont.

TRUSCON STEEL WINDOWS

Hospital for the Incurable Insane, Indianapolis, Ind.

Lay Cornerstone of City Hospital Surgical Unit.—The cornerstone of the surgical unit of the Indianapolis City Hospital, Indianapolis, was recently laid, according to Dr. Cleon Nafe, superintendent.

Dedicate Indiana Hospital Building.—The Boehne Tuberculosis Hospital of Vanderburgh County dedicated a new $115,000 building, January 24, increasing the capacity of the hospital by forty-eight beds. The old hospital building will be completely renovated and used for women and children. The hospital has several buildings on sixty-eight acres of land, according to Dr. George E. Mills, superintendent.

Iowa

Des Moines Hospitals to Merge.—The Iowa Congregational Hospital and the Iowa Lutheran Hospital, Des Moines, have completed plans for a merger and hereafter the former hospital will be conducted as an auxiliary to the Lutheran Hospital, and will be used especially as a maternity hospital.

Louisiana

New Orleans Suburb Plans New Hospital.—Mr. Jules Bodenger has donated a square of ground as a site for a hospital in Algiers, a suburb of New Orleans, and has also offered to match the individual cash donation of any resident in that part of the city. This suburb of New Orleans, which is on the west bank of the Mississippi river, has no hospital and all cases are transported in ambulances on the ferries. A campaign to raise $100,000 for the construction of the hospital is being planned by the Algiers branch of the association of commerce.

Maine

Dr. Garrison Appointed Superintendent.—Dr. William M. Garrison, Bangor, has been selected as superintendent of the new tuberculosis sanatorium at St. Clairsville, Belmont County, Ohio. The institution is nearing completion.

Maryland

Appoint Successor to Dr. Siegal.—Dr. John E. O'Neill, Baltimore, has been appointed superintendent of the negro branch of the Maryland Tuberculosis Sanatorium, Henryton, to succeed Dr. William Siegal, resigned.

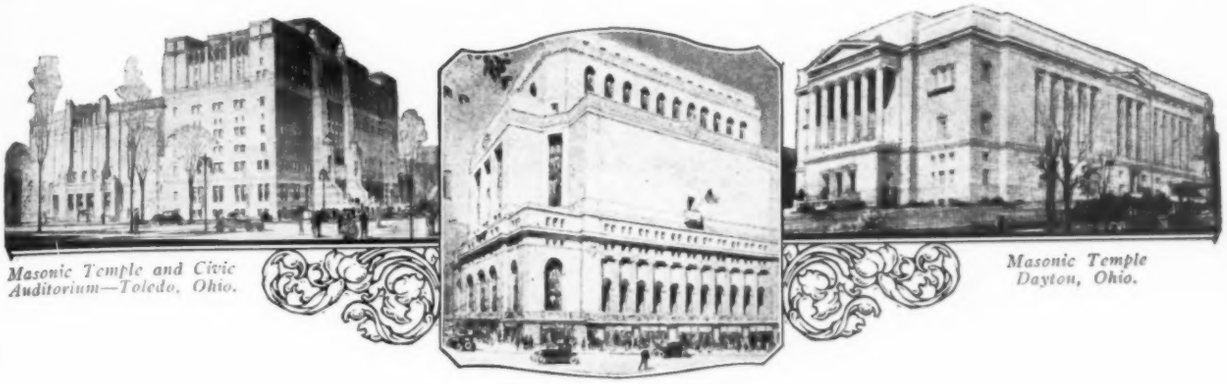
Ratify Appointment of Superintendent.—The board of managers of the State Tuberculosis Sanatorium has ratified the appointment of Dr. John A. Smith as superintendent of the Mount Wilson branch of the institution, which will open early this year. Dr. Smith formerly was assistant physician at the tuberculosis sanatorium at Sabillasville under Dr. Victor F. Cullen. The new branch at Mount Wilson will, for the present, be equipped to care for only women's and children's ambulatory cases. A number of beds will be maintained free, as heretofore.

Massachusetts

New Building for Boston City Hospital.—The new gynecological and obstetrical building of the Boston City Hospital, Boston, the cornerstone of which was recently laid, will be a seven-story structure. The first two floors will be devoted to gynecology while the third, fourth and fifth floors will be given over to maternity cases. The sixth floor will have the operating and auxiliary rooms. Each ward floor will have a kitchen, service rooms and two sound-proof isolation rooms.

Michigan

Niles Hospital Association Receives Gift.—The Niles Hospital Association, Niles, recently was the recipient of



Masonic Temple and Civic Auditorium—Toledo, Ohio.

Masonic Temple, Albany, N. Y.

Masonic Temple Dayton, Ohio.

In Four Cities Alone Ehler Directed Campaigns Raised Over $8,000,000 Last Year

NOTHING said or written could pay greater tribute to the value and quality of Ehler service than the fact that over $8,000,000 was raised through our efforts in four large American cities alone last year. Even more significant, perhaps, is the fact that we were called back to three of these cities to repeat former campaign successes.

In February we returned to Cincinnati, Ohio for our fifth campaign in two years, where we conducted successful campaigns for a Masonic Temple, Hospital, Deaconesses Hospital and the Chamber of Commerce. Our success in raising $1,500,000 for a Dayton Masonic Temple prompted our recall to raise $500,000 for the Dayton Community Chest. In Toledo we raised $1,600,000 twice within five months for a new Masonic Temple and Civic Auditorium and the Toledo Hospital. Albany, N. Y., long regarded as a graveyard for money raising projects yielded $1,000,000 for a Masonic Temple within 12 days after we began operations.

Ehler service has brought welcome relief to many organizations and institutions dependent upon public support for their development and maintenance. The dignity and economy of Ehler management are exceeded only by the consistent successes they insure which have awakened greater national interest in the fields of philanthropy, fraternalism and civic advancement than anything ever before accomplished.

Our booklet "Success in Raising Money" will be mailed on request

Herbert B. Ehler & Company, Inc.

15 Park Row, New York, N. Y.

Masonic Temple, Cincinnati, Ohio.

Toledo Hospital, Toledo, Ohio.

Deaconesses Hospital Cincinnati, Ohio.

For complete index of advertisements refer to the Classified Directory

Some of the Hospitals using FINNELL SYSTEM

Johns Hopkins Hospital, Baltimore, Md.
Evangelical Deaconess Hospital, Detroit, Mich.
Mayo Clinic Hospital, Rochester, Minn.
Sacred Heart Sanitarium, Milwaukee, Wis.
Harper Hospital, Detroit, Mich.
St. Mary's Hospital, Minneapolis, Minn.
St. Elizabeth Hospital, Hannibal, Mo.
Missouri Baptist Sanitarium, St. Louis, Mo.
Robert Breck Brigham Hospital, Boston, Mass.
Nashua Memorial Hospital Nashua, N. H.
County of Sacramento Hospital, Sacramento, Calif.
Mercy Hospital, Baltimore, Md.

For Scrubbing or Polishing!

Opinions may differ as to whether hospital floors should be scrubbed or polished. It depends upon the kind of floor and location.

But there are no two opinions about the economy and superior results of the FINNELL SYSTEM for either method.

The No. 17 Finnell Scrubber is one of the handiest all 'round pieces of equipment ever used in a hospital. It is large enough to work rapidly over large areas. It is light enough to be as easily operated by a woman as by a man. Yet it applies a scrubbing pressure of 33 pounds which may be increased for polishing up to 50 pounds. It goes into corners, between beds, under anything with 6 inches clearance above the floor.

There are larger models and smaller models. Whatever the size of your building the FINNELL SYSTEM is adaptable to your needs and your budget. Write for full information including booklet, "Your Questions Answered by Users."

FINNELL SYSTEM, INC.
(Established 1906)
District Offices in Principal Cities
Collier Street **Hannibal, Mo.**
Power Scrubbing Headquarters for 19 Years

FINNELL
ELECTRIC FLOOR MACHINE
It Waxes \ It Polishes \ It Sands \ It Scrubs

a gift of $100,000 from Mr. and Mrs. F. J. Plym to purchase and remodel the "Dresden property" in that city for a hospital. The hospital association is now planning a campaign to provide additional funds to furnish and equip the hospital. There is already a fund of more than $9,000.

State Hospital Heads Transferred.—Dr. Perry C. Robertson, superintendent of the Newberry State Hospital, Newberry, has been transferred to the Ionia State Hospital, Ionia, to succeed Dr. Robert H. Haskell, who recently resigned to accept the superintendency of the new Wayne County Training School for Feebleminded Youths at Northville. Dr. Earl H. Campbell, superintendent of the Traverse City Hospital, Traverse City, has been transferred to Newberry to succeed Dr. Robertson, and Dr. George F. Inch, assistant superintendent of the Kalamazoo State Hospital, Kalamazoo, has been promoted to the superintendency of the Traverse City Hospital to succeed Dr. Campbell.

Minnesota

Morgan Park Hospital Closes Doors.—The Morgan Park Hospital, Duluth, recently closed its doors, its patients being sent to St. Mary's and St. Luke's Hospital, Duluth.

Dr. A. J. McRae Leaves St. Luke's.—Dr. A. J. McRae, who has been in charge of St. Luke's Hospital, Duluth, since 1919, has left that institution and will assume the duties of superintendent of the Jackson Memorial Hospital, Miami, Fla.

State Hospital Superintendents Announced.—Dr. George H. Freeman has been appointed superintendent of the St. Peter State Hospital, St. Peter, and Dr. George T. Baskett has been named superintendent of the Willmar State Hospital, Willmar, according to a recent announcement.

Open Free Tuberculosis Clinic at Minneapolis.—A new free tuberculosis clinic has been opened at Twenty-eighth avenue, South, and Lake Street, Minneapolis, according to Dr. W. J. Marcley, who is in charge. The clinic will be open evenings to care for people employed during the day.

Missouri

Dr. Shankland Appointed Hospital Commissioner.—The director of public welfare of St. Louis, has appointed Dr. James Wilbur Shankland hospital commissioner of that city, to succeed the late Dr. Germaine A. Jordan. Dr. Shankland has been on the staff of the City Hospital, St. Louis, for four years and has been superintendent of the surgical clinic of St. John's Infirmary.

New Jersey

Open Convalescent Branch at South Orange.—The new convalescent branch of the Newark City Hospital, Ivy Hill, South Orange, was recently opened to the public.

Nurses' Home Planned for Hawthorne Sanatorium.—A new nurses' home, two and one-half stories in height, is being planned for the Christian Sanatorium, Hawthorne.

Announce Opening of Bridgeton Hospital.—According to Ida D. Squarewood, superintendent, the new $200,000 home of the Bridgeton Hospital, Bridgeton, has been opened to the public.

Hospitals Vacated as Fire Hazards.—Five hospitals in Newark were ordered to vacate their buildings and many more were instructed to make improvements in their structures by the superintendent of the building department, in an effort to reduce fire hazards. The hospitals ordered to vacate are the Clinton, the East End, the Essex, the Lincoln and the North End.

New Wing of The West Penn Hospital, Pittsburgh, for which Ground will be Broken Next Month

THIS building rounds out and completes the physical equipment of Pittsburgh's largest hospital. The $750,000 which it will cost, with a large additional amount for alterations and improvements to older buildings, was given during a quiet "group-type" campaign during the closing months of 1925. Ketchum Publicity, Inc., assisted the directors of the Hospital in this fund-raising effort.

If *your* institution will need funds for building, endowment or maintenance during 1926, we shall be glad to discuss your problem with you and recommend a solution, without obligation to your Board unless it decides to make use of our services.

For information as to our record and methods, or to arrange a conference, please write to

NORMAN MACLEOD

of

KETCHUM PUBLICITY

INCORPORATED

PARK BUILDING PITTSBURGH

MARY FRANCES KERN

It is the same old story in every part of the Country and under all conditions. Once more the MARY FRANCES KERN ORGANIZATION has happily surprised her patron by getting more money than was asked for or expected. This time it is down in Alabama.

Read what this satisfied client says:

February 19th, 1926.

Dear Mrs. Kern:—

The manner in which the Benevolent Hospital campaign was conducted by your organization has been pleasing and more than satisfactory to us and we are indeed gratified with the results.

Your organization undertook to raise a fund with which to enlarge and equip our Benevolent Hospital in Albany and Decatur and the indications are that when the Campaign closes tonight that amount will have been exceeded by Ten Thousand Dollars.

Your immediate representative here has labored diligently, faithfully and intelligently and has seen to it that all of us did our bit.

It is a pleasure for us to commend the methods employed by your organization in raising money and to assure you that the amount raised in this campaign has far exceeded our expectations.

Yours very truly,

Thomas A. Bowles, *General Chairman.*
Charles Roundtree, James H. Johnson, B. D. Meadors, John Patterson } *Executive Committee.*

MARY FRANCES KERN
Financial Campaigns
1340 Congress Hotel
CHICAGO, U. S. A.

8 West Fortieth St.
NEW YORK, N. Y.

73 Adelaide St., West
TORONTO, CAN.

New York

Heads Beth Israel Hospital Alumni.—Dr. Louis Dlugasch was recently elected president of Beth Israel Hospital Alumni Association, New York.

Open Hillside Sanitarium.—The new Hillside Sanitarium, Jamaica, Long Island, was opened January 6, by a banquet of the physicians of that community.

Remove Patients in U. S. Marine Hospital.—All patients in the U. S. Marine Hospital on Hudson street were removed to the base hospital in Brookyln, December 28.

Louise Arnold Accepts Superintendency.—Louise Arnold has accepted the superintendency of the Frederick F. Thompson Hospital, Canandaigua, and entered upon her duties January 1.

Named Superintendent of Nurses at St. Marks'.—Elsa Maurer has taken the superintendency of nurses at St. Marks' Hospital, New York, where Dr. John F. Bresnahan recently became superintendent.

Mineola Hospital Opens New Wing.—The Nassau Hospital, Mineola, recently opened a new wing having a capacity of thirty-six private beds, thirty beds for children and three operating rooms.

French Hospital Campaign Fund Grows.—About $160,000 has been subscribed toward the fund to enlarge the French Hospital, New York. The planned building will add 175 beds to the hospital's capacity.

Medical Superintendent Enters Private Practice.—Dr. John J. Lloyd, Jr., for several years medical superintendent, Monroe County Tuberculosis Sanitarium, Rochester, has resigned to devote his time to private practice.

Named Superintendent at Chenango County Sanitarium.—Dr. Archibald K. Benedict, Sherburne, has been appointed superintendent of the Chenango County Tuberculosis Sanitarium, Sherburne, to succeed Dr. Don U. Gould, resigned.

Goldwater Engaged as Consultant.—The Beth Moses Hospital, Brooklyn, has engaged Dr. S. S. Goldwater, director, Mount Sinai Hospital, New York, as consultant in replacing several of its old buildings with modern fireproof structures.

Heads Bellevue Hospital Alumni Association.—Dr. John F. Haggerty, medical director of St. Michael's Hospital, Newark, N. J., has recently been elected president of the Bellevue Hospital Alumni Association, New York, which is composed of medical men who served as interns in the New York institution.

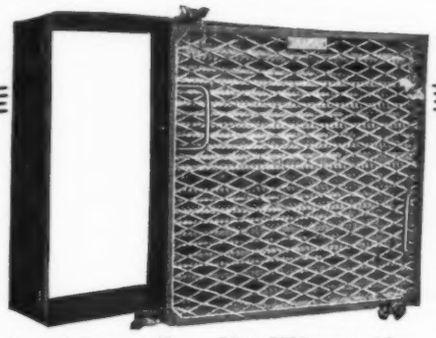
Grassland Hospital Directs Personnel Recreation.—Under the direction of Mary E. Stevens, Grassland Hospital, Valhalla, has created a department to direct the recreational interests of the hospital personnel, which may serve to smooth out difficulties that deter cooperation. This department will include all phases of the hospital except the nurses' training school.

Ohio

Bonds for Hospitals.—The three proposed bond issues to provide funds for tuberculosis hospitals were approved at the last election and will provide $735,000 for a new county sanatorium for Stark County; $626,000 for an addition to the children's ward at the Cleveland Sanatorium. Cleveland, and $150,000 for a new county sanatorium in Trumbull County. These new institutions will provide 250 additional beds.

Babies' and Children's Hospital Head Appointed.—Gladys Sellew has been appointed superintendent of the new Babies' and Children's Hospital, Cleveland. Previous to her appointment Miss Sellew was assistant professor of nursing education and supervisor of pediatric nursing in the Cincinnati University School of Nursing. She will

A Sure Supply of Clean Air for Hospital Ventilation in Either New or Existing Buildings



Cell and frame Type U-2 Midwest Air Filter

Fig. 1 shows how the frames of a Midwest installation interlock to form an air tight joint.

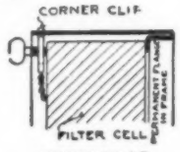


Fig. 2 shows how the filter cell is forced against a flange in the frame to make a leak-proof joint.

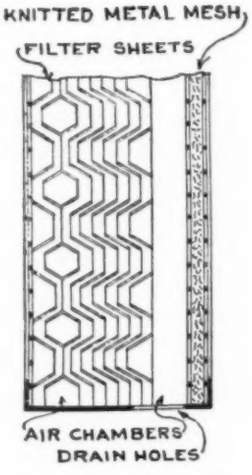


Fig. 3 shows construction of the filter cell.

THE constantly increasing amount of dust and bacteria in the air today makes urgent the need for clean air in ventilating practically every hospital, whether located in urban or suburban districts.

Certainly some departments, such as operating rooms, X-ray rooms, and contagious disease wards must be protected in some way against the harmful effects of atmospheric dust and bacteria, and, if it can be economically obtained, clean air for the entire ventilating system of the hospital is obviously desirable.

Midwest Air Filters have thoroughly demonstrated their ability to provide a never failing supply of air free of all harmful dust and bacteria, at reasonable and moderate cost, by successful installations in large and small hospitals (either for special departments or for the entire ventilating system).

The standard unit type is available for complete ventilating systems, or for large individual rooms or groups of rooms. The Midwest Window Ventilator, a special self-contained unit made up of fan, motor, and air filter, and quickly installed in a window, is available for situations where the standard unit type is not suitable.

We would like to send our local engineer to discuss the subject with you. Write Dept. M and ask him to call at your convenience.

OUTSTANDING FEATURES OF MIDWEST AIR FILTERS

An installation is built up of standard, interchangeable units (consisting of a frame and a filter cell 20 x 20 x 6½" overall, with a capacity of 800 C.F.M. per unit). A positive air-seal is provided between each cell and frame, and between adjoining frames on all sides.

The unique Midwest baffle-impingement principle makes these filters the most efficient air cleaners in existence. The filter medium consists of a series of specially shaped and perforated metal sheets coated with a sticky viscous fluid. Dusty air in passing through the filter cell, is forced to change its direction innumerable times.

Dust particles are impinged against the sticky surfaces of the filter sheets, where they are caught and held. A series of specially designed sheets of knitted metal mesh are provided at the rear portion of the cell, on which fine dust particles which might pass the first filter sheets are impinged and caught.

Each cell holds a large amount of dust and does not clog up. A constant operating resistance of ⅜" water gauge is maintained by routine cleaning. One man, on a small part of his time, takes care of the average installation.

MIDWEST AIR FILTERS
INCORPORATED
BRADFORD, PA.

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83 Craig St., West
Montreal, Canada

Midwest Pacific, Inc.
Monadnock Building
San Francisco, California

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Syracuse China
used exclusively in Butterworth Hospital

Your hospital, too, needs the kind of china that is graceful in shape, attractive in coloring, and durable in service. How tempting and appetizing to your patients is food served on a beautifully designed tray service!

Syracuse China can be cheerful and decorative as you wish. Its beauty is obtained without sacrificing any of its strength and endurance. Thoroughly vitrified, it aids complete sterilization. And Syracuse China is scientifically constructed to stand hard wear—it rarely breaks, cracks or even chips. You can quickly replace Syracuse if an accident *should* happen.

There is a Syracuse dealer near you who will gladly show you the many open stock patterns. Consult him, too, about having a special design made with your hospital's crest or monogram. Or write to us direct.

ONONDAGA POTTERY CO.
SYRACUSE, NEW YORK
58 E. Washington St., Chicago;
342 Madison Avenue, New York City

SYRACUSE CHINA

assume the title of assistant professor of Western Reserve University School of Nursing.

State Insane Hospitals Care for 13,354 Patients.—According to an announcement by John E. Harper, welfare director, the state hospitals for the insane, eight in number, were caring for 13,354 patients on December 31, 1925. This represents a gain of 255 patients over the preceding six months' period. With completed buildings and those under construction at present, facilities for several hundred additional patients will be provided within the next six months.

Oregon

Hospital Celebrates Fiftieth Anniversary.—The Good Samaritan Hospital, Portland, recently celebrated its fiftieth anniversary. Within the last ten years improvements to the institution costing $450,000 have been provided.

Pennsylvania

Two Philadelphia Hospitals Receive Donations.—By the will of the late Frank H. Ellis, the Pennsylvania Hospital and the Kensington Hospital for Women, Philadelphia, are each to receive $100,000.

Dr. George H. Haas Appointed by Governor Pinchot.—Dr. George H. Haas, Allentown, was recently appointed as a member of the board of trustees of the Allentown State Hospital, Allentown, by Governor Pinchot.

Oversubscribe Hospital Campaign Fund.—The recent campaign of the Williamsburg Hospital, Williamsburg, for $600,000 to rebuild that institution, was oversubscribed in a short time by $30,000. Physicians of that city gave $51,530.

Resigns as Instructress of Nurses.—Alice Stratton has resigned her position as instructress of nurses at the Presbyterian Hospital, Pittsburgh, on account of ill health, and has gone to the Presbyterian Sanatorium, Alberquerque, N. M., for an indefinite period.

Dispensary Treats 20,000 Patients in First Year.—The Northern Liberties Hospital, Philadelphia, recently announced that its dispensary treated more than 20,000 patients during the first year of its existence. The hospital is conducting a campaign for $50,000.

Episcopal Hospital Plans Additions.—Following a survey made by Dr. S. S. Goldwater, director, Mount Sinai Hospital, New York, the Episcopal Hospital, Philadelphia, is preparing plans for several new structures, in accordance with the recommendations of Dr. Goldwater.

Plan Nurses' Home and Hospital Addition.—The Mercy Hospital, Wilkes-Barre, is making preparations for building an addition to the present hospital building, which will increase the capacity to 200 beds. A nurses' home, to be erected and furnished at a cost of $450,000, is also contemplated.

Donates $50,000 for Charity Patient Service.—St. Luke's Hospital, Bethlehem, is in receipt of a gift of $50,000 from Dr. Henry T. Trumbauer, Coopersburg, the income of which is to be applied to the medical and surgical treatment of those patients who are unable to pay. The donation is to be utilized exclusively for charity patients.

Accepts Position at Locust Mountain Hospital.—Mary Kurchinsky has been appointed superintendent and directress of nurses at the Locust Mountain Hospital, Pottsville. Miss Kurchinsky is a graduate of the Fountain Springs School of Nursing and was superintendent and directress of nurses at the Lewistown Hospital, Lewistown.

Harrisburg Hospital Surgeon Resigns.—Dr. Alexander A. S. Stuart, chief resident surgeon of the Harrisburg Hos-

Announcing—

Eastman
Bite-Wing
Dental X-Ray Film Packets

(Raper Patent)

For the X-Ray Examination of

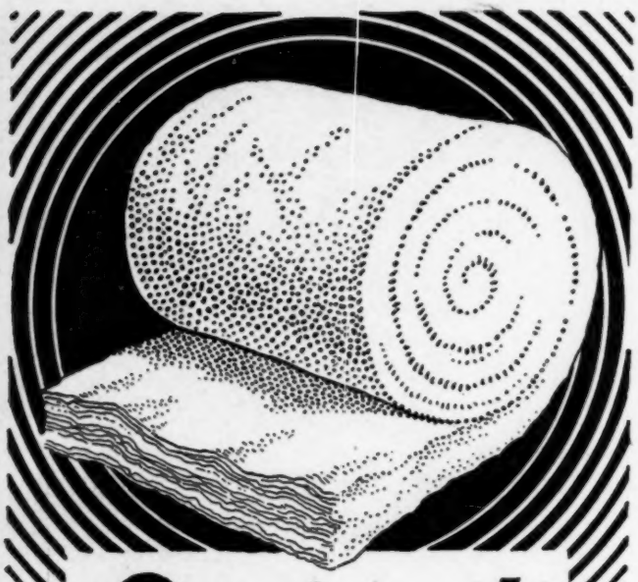
Teeth for Inter-Proximal Cavities

This packet, designed by Doctor Howard R. Raper, makes possible a distinctly new and most important kind of preventive dentistry. With it, inter-proximal cavities *impossible to detect by clinical inspection* are revealed *in their incipiency* with clearness and surety.

Literature and sample on request

Eastman Kodak Company

Medical Division Rochester, N. Y.



Sanisorb

THE IDEAL ABSORBENT

A material superior to the finest absorbent cotton. It is highly absorbent, low in price, economical and convenient to use. Made in one of Wisconsin's great mills under conditions insuring a sparkling snow-white, absolutely clean product. Sanisorb is put up in rolls averaging 15 pounds each, six rolls to the case. Deliveries can be made immediately.

27¢ lb.

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Discounts on large quantities

The above price applies in Zone 2, which includes all states east of the Mississippi river, and Minnesota, Iowa, and Missouri. Zone 3, west of the Mississippi river and east of the Rocky Mountains, add 1c per pound. Zone 4, west of the Rocky Mountains, add 3c per pound. Samples on request.

WILL ROSS, INC.
457-459 E. WATER ST.
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Immediate Deliveries

pital, Harrisburg, has resigned from the hospital staff to take up surgery as the assistant of Dr. L. P. Allison, Overall Memorial Hospital, Coleman, Texas. Pending the selection of a new chief resident, Dr. Guy C. Christ is holding that position.

Two New Buildings for Allentown Hospital.—Plans have been completed and construction will begin at an early date on the new buildings for the Allentown Hospital, Allentown. A central building that will accommodate the domestic and scientific services of the hospital, and a five-story building containing the out-patient department, the maternity department, several wards and two private floors comprise the additions. Dr. S. S. Goldwater, New York, is the consultant.

Plan to Enlarge Jewish Charitable Institutions.—The chairman of the Federation of Jewish Charities in Philadelphia recently emphasized the obligation of the Jewish community of that city to enlarge the hospital accommodations at the Jewish and Mount Sinai Hospitals. The federation has arranged a campaign to raise a building fund of $3,500,000 to be used in enlarging various Jewish charitable institutions. This campaign will be one of the greatest in the history of Philadelphia, and will serve to replace, remodel and re-equip eleven institutions which form a part of the federation.

Rhode Island

Appointed Superintendent at Miriam Hospital.—Samuel G. Ascher, Hartford, Conn., has been appointed superintendent of the Miriam Hospital, Providence.

South Carolina

Dr. Beeler Elected Superintendent.—Dr. James M. Beeler recently was elected superintendent of the Spartansburg General Hospital, Spartansburg.

Texas

Dr. Christian Accepts Superintendency.—Dr. John S. Christian, who has been connected with the Austin State Hospital, Austin, for the past three years, has accepted the superintendency of the State Hospital for Senile Insane, Austin.

Washington

Close Contract for Pierce County Hospital.—The contract has been closed for the first unit of a new county hospital for Pierce County, which will cost $100,000.

Wisconsin

Dr. McEachern Named Superintendent.—Dr. Walter A. McEachern, Superior, was recently appointed superintendent of the Superior Isolation Hospital, Superior.

Canada

Canadian Superintendent Goes to St. Paul.—Dr. Donald C. Smelzer, formerly associate superintendent, Montreal General Hospital, Montreal, has been appointed superintendent of the Charles T. Miller Memorial Hospital, and the Amherst Wilder Dispensary, St. Paul, Minn. For the last two years Dr. Smelzer has been connected with the Buffalo General Hospital, Buffalo.

Foreign

Sleeman Appointed Head of Adelaide Hospital.—Dr. James G. Sleeman, Adelaide, Australia, has been appointed superintendent of the Adelaide Hospital, Adelaide Australia.

The Hanger Limb of Today Is the Result of Constructing, Fitting and Improving A QUARTER OF A MILLION Artificial Limbs

Sixty-Five Years Experience in Wearing Manufacturing and Improving Artificial Limbs

Forty Travelling Experts Trained to Render Service at Patients' Homes

J. E. Hanger, Inc.

Largest Artificial Limb Organization in the World

MANUFACTURING PLANTS

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A Few of the Many Styles of Hanger Limbs

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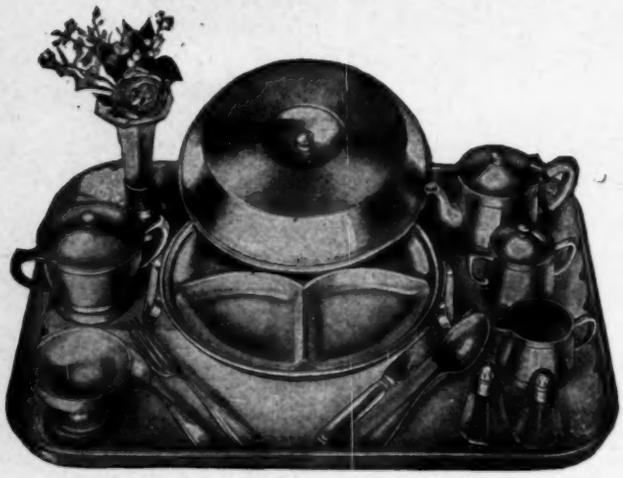
SILVER SERVICE



Thorner's Silver Service is made of 18% Nickel Silver with a quadruple silver plate. Wears a lifetime. Replacement through breakage is forever eliminated. It is never affected by wear or polishing.

Illustration features Thorner's Improved Three Compartment Hot Water Plate. Tea Set with reinforced bands, hard metal hinges, Silver Soldered and one-piece unleakable bottom. Covered Soup Cup with Silver Soldered handles. Sherbet Dish, Individual Bud Vase, Salt and Pepper Shakers, and Superior Grade Sectional Plate Flatware. Illustrations and estimates submitted upon request.

THORNER BROTHERS

Importers and Manufacturers of Hospital and Surgical Supplies

386-390 Second Avenue

NEW YORK CITY

Trade News and Publications

Victor X-Ray Corporation.—Service Suggestions, a pamphlet dealing with advice on four new Victor developments—motor drive roentgen table, stereo radiographic unit with automatic tube shift, stabilized x-ray timer and rotating Bucky diaphragm, has recently been received from the Victor X-Ray Corporation, Chicago.

Toch Brothers Folders.—Toch Brothers, New York, technical and scientific paint and varnish makers, have issued folders dealing with Chewing Gum Removers and Elastic Caulking Compounds.

The Story of Sani-Onyx.—Marietta Manufacturing Company, Indianapolis, have recently issued a twenty-four page brochure, devoted to the use of Sani-Onyx in hospitals. The information offers designs, specifications, installations and adaptations of their product in the field.

Bacto Reagents.—Digestive Ferments Company, Detroit, have distributed "Bacto Reagents," which deals with dehydrated culture media for water and milk analysis, fermentation studies, diagnostic purposes, plant pathologists and yeasts and fungi.

Physician's Bulletin No. 51—Eli Lilly and Company, research and manufacturing chemists, Indianapolis, have issued Physicians' Bulletin Number Fifty-One, which includes uses for their product in scarlet fever antitoxin, diabetes, tuberculosis, and chronic rheumatism.

McCray Catalog No. 97.—The McCray Refrigerator Sales Corporation, Kendallville, Ind., have devoted a forty-eight page catalog to a description of their refrigerators and a partial list of users in this country.

John Van Range Co. Moves.—The John Van Range Co. has sold its present building in Cincinnati to the Masonic Temple Company and will acquire land in the outlying districts for a new factory.

New York Firms Merge.—An announcement has recently been made of the combination of the Standard Varnish Works, New York and Chicago, and the Toch Brothers, Inc., Long Island City.

Handbook for Architects and Builders.—Volume XXVIII, 1925, a Handbook for Architects and Builders, published under the auspices of the Illinois Society of Architects, has recently been received. The handbook includes many new features, lists changes made in ordinances, and new amendments passed by the Chicago city council, together with a listing of the Fellows of the society and other associated organizations.

Farmer Universal Support.—The Precision Scientific Co., Chicago, have recently issued a circular describing the Farmer Universal Support which is an improved laboratory stand for use in school, college and scientific laboratories.

Sunkist Fruit Extractors.—The Department of Fresh Fruit Drinks, California Fruit Growers Exchange, Chicago, Ill., have recently prepared a folder on Sunkist Extractors, which points out possible savings through the use of their product.

Athey

(Patented)

Cloth-Lined Metal Weatherstrip

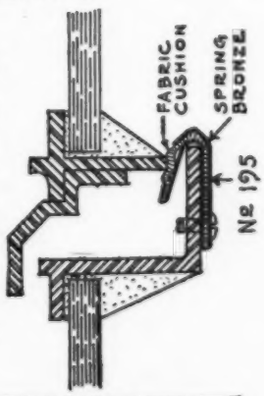
Other Weatherstrip Can't Be as Efficient as the Athey

The most common weatherstrip is a one-piece zinc strip provided with a rib which fits into a slot cut in the edge of the sash. Such strip ***can't be effective*** because both upper and lower sash are deeply grooved, for one-third of their height, to take care of sash cord—hence such weatherstrip provides no protection for one-third the height of the window. And the part that is "fitted" must be loose enough to allow for the swelling of wood in damp weather.

The two-piece metal weatherstrip provided a vast improvement over the one-piece type. But it has been found that when the two pieces of metal are fitted tight enough to prevent infiltration of air they create too much friction, and the free operation of the sash is retarded when the wood swells.

For Wood or Metal Windows

Sketch shows Athey Cloth-Lined Metal Weatherstrip for drawn steel windows. Notice the *cloth and spring bronze contact*. Athey is the **only** cloth-lined metal weatherstrip made, and experience has proved that a cloth-to-metal contact is the only one that actually "seals" the windows without making them stick.



The patented Athey *Cloth-Lined* Metal Weatherstrip overcomes all the disadvantages of these other types. For the cloth-to-metal contact provides a perfect "seal" against drafts and dust—yet is sufficiently pliable to prevent the sash from sticking. Furthermore the efficiency of the Athey strip is not dependent upon the fit of the sash. For even when the windows are loose Athey strip provides a perfect seal and also overcomes all rattle.

Write for complete information and prices

Athey Company

6011 West 65th Street - Chicago, Illinois

In Canada: CRESSWELL-McINTOSH, Reg'd.
270 Seigneurs St., Montreal, Que.

Athey Products

SEE OUR CATALOGUE IN SWEET'S

Perennial Window Shades Disappearing Partition
Skylight Shades Cloth-Lined Metal Weatherstrips

What Does It Cost to Mop Your Floors?

There are two costs in mopping—labor and equipment. You can save on both with a

WHITE
CAN'T SPLASH
MOPPING OUTFIT

A single operation of the "Can't Splash" will do the same amount of work as three operations of any other type of mop wringer. A pressure on the handle wrings the mop dry. A greater surface is cleaned before it is necessary to again squeeze out the surplus water THIS SAVES LABOR.

With the "Can't Splash" the mop is not PULLED through rollers and cannot catch and tear. Its simple construction eliminates replacement of parts. There is nothing to get out of order. THIS SAVES EQUIPMENT.

The White "Can't Splash" Mopping Outfit provides the most sanitary and efficient way of cleaning halls, rooms, surgeries and kitchens. It is the most economical equipment for hospitals.

MADE IN TWO SIZES FOR HOSPITAL PURPOSES

WOMEN'S OUTFIT consists of medium sized wringer for use with 12 or 16 ounce mop, with a 16 quart galvanized mopping bucket.
Price **$4.75**

MEN'S OUTFIT consists of a large janitor wringer for use with 20 ounce and larger mop, and a 26 quart galvanized mopping bucket.
Price **$6.50**

Oval bucket allows more room for rinsing the mop than a round bucket. Reinforced sides and bottom. Will outlast at least six ordinary buckets. Better balanced. Carried with less effort. Fitted with glides so outfit can be easily moved along floor. Will withstand the hardest usage and last as long as the wringer.

Fill in Blank Below for 30 Days Trial

WHITE MOP WRINGER COMPANY
DEPT. I, FULTONVILLE, NEW YORK
CANADIAN FACTORY, PARIS, ONT.

WHITE MOP WRINGER CO.,
Dept. I, Fultonville, N. Y.

Send us all charges prepaid.....MEN'S.....WOMEN'S "Can't Splash" Mopping Outfit. After 30 days trial we will either send check or return outfit at YOUR expense.

Name of supply house.....

Name .....

Hospital .....

City .....

Crescent Washing Machine Company.—The Crescent Washing Machine Company, New Rochelle, N. Y., announces a new dishwasher, Model "K," for use in small kitchens, according to a folder that has been recently distributed.

Spencer Lens Co., Catalogs.—The Spencer Lens Co., Buffalo, N. Y., have recently issued catalogs M20, M21, M22 and M23, which describe selected products for use in schools and research laboratories.

Safety Hand Lamps.—Crouse-Hinds Company, Syracuse, N. Y., describes Safety Hand Lamps in Folder 31 which was recently received. The lamps are constructed to withstand extraordinarily hard service.

Sterilizer Equipment for Hospitals.—The Wilmot Castle Company, Rochester, N. Y., sterilizer manufacturers, have included information of interest to both hospital executives and architects, as well as descriptions and specifications of their products, in a new catalog, Sterilizer Equipment for Hospitals, which has recently been mailed out to superintendents.

Do/More Health Chairs.—A folder, Do/More Health Chairs, which deals with a correct posture product, has been distributed by the Do/More Chair Company, Elkhart, Ind.

GF Allsteel Safes.—General Fireproofing Co., of Ill., Chicago, Ill., describes the safety of Allsteel safes in fires, in discussing their product in a recent folder that has been prepared.

Electrical Supply Year Book.—Graybar Electric Company, successor to Western Electric Supply Department, New York, has also succeeded the latter company in the publication of the Electrical Supply Year Book for 1926-27 which has been recently issued. The book lists more than 60,000 items which the company stands ready to deliver promptly.

American Ring Company.—The American Ring Company, Waterbury, Conn., manufacturers of cabinet, furniture, drapery and upholstery hardware, have recently distributed Catalog Q, Brass Goods, which illustrates the numerous hardware articles of brass that the company produces.

Milwaukee Corrugating Company.—Modern Modes in Better Plastering, an attractively prepared booklet devoted to the subject of wall finishing, has been issued by the Milwaukee Corrugating Company, Milwaukee, Wis.

How Windows Can Make Better Homes.—David Lupton's Sons Co., Philadelphia, has prepared a booklet, How Windows Can Make Better Homes, which is illustrated in colors.

Beckman-Dawson Change Location.—The Beckman-Dawson Roofing Company, Chicago, recently moved its general offices from 111 Jackson Boulevard to 223 Jackson Boulevard, where more space is available.

Long-Bell Company Increases Holdings.—The Long-Bell Lumber Company, Kansas City, Mo., recently purchased the plant of the Superior Oak Flooring Company at Helena, Ark. The acquisition makes the Long-Bell Company the second largest manufacturer of oak flooring in the country.

Schweim Appointed by Gypsum Industries.—Henry J. Schweim has been appointed chief engineer of the Gypsum Industries, Chicago, to succeed the late Virgil G. Marani.

How to Isolate Machine Vibrations.—The Korfund Co., Inc., New York, fully treats one of the important problems of engineering in their new catalog "How to Isolate Machine Vibrations."